Patient-Provider Concordance: A Review and Conceptualization

*Roy Penchansky, D.B.A.**

The existence and character of the relationship between a patient and provider are probably key variables determining the performance of the medical care system. Prior analyses of this relationship have addressed it as three largely distinct areas: the patient having a usual source, a personal physician, or a central source; the concept of managing physician, primary physician or gatekeeper; and, the patient-physician interpersonal or therapeutic relationship.

If the relationship between provider and patient is important, then there is a need to answer the questions: Are there factors that influence the existence or strength of the relationship and, if so, what are they? How do the existence and strength of the relationship influence choice of source, use, quality, compliance, efficiency, and satisfaction? Will the addition of a measure (or measures) of the existence and characteristics of the patient-provider relationship improve our ability to explain the functioning of the health care system? How can the relationship between patient and system or provider be characterized in ways useful for research and policy analysis?

This article has four major objectives: to establish the importance of usual source (personal physician or managing physician) to health

*Professor, Department of Health Services Management and Policy, School of Public Health, University of Michigan, Ann Arbor, Mich.

system behavior and, therefore, to establish the need for useful definitions and operational measures of the concept(s); to establish that the existing definitions and measures are inadequate; to establish that the existing information about these topics is inadequate; and to propose a set of definitions and a conceptualization. Two of the objectives—to establish the importance of the characteristics of the relationship between patient and provider to performance of the health care system and to establish that the existing information is not adequate—can be addressed readily. They receive only minimal attention and are considered first.

IMPORTANCE TO HEALTH SYSTEM PERFORMANCE

The importance to health system performance of the patient having a usual source or a personal physician, or of there being a physician who assumes responsibility for a patient, has been established in numerous studies, although exceptions do exist (Bice and White 1969; Gordis and Markowitz 1971; Roos et al. 1980). Studies which relate aspects of the physician-patient relationship to a variety of areas of performance include: (1) the amount of use (Aday 1975, 1976; Andersen and Aday 1978; Berki and Ashcraft 1979; Berki et al. 1978; Colle and Grossman 1978; Hershey, Luft, and Gianaris 1975; Kennedy 1979; Koplin, Hutchison, and Johnson 1959; Kronenfeld 1978a, 1980; Luft, Hershey, and Morrell 1976; Marcus 1981; Marcus and Stone 1984; Scitovsky, Benham, and McCall 1979); (2) delay in use (Steinwachs and Yaffe 1978); (3) preventive use (Berki and Ashcraft 1979; Hershey, Luft, and Gianaris 1975; Lave et al. 1979; Marcus 1981; Marcus and Stone 1984; Mindlin and Densen 1969); (4) compliance (Becker, Drachman, and Kirscht 1974; German, Skinner, and Shapiro 1976; Strecher 1982); (5) choice of source (Anderson and Sheatsley 1959; Ashcraft 1978; Berki et al. 1977; Donabedian 1969; Kretz, Mitchell, and Wallack 1980; Leveson 1972; Roghmann et al. 1975; Tessler and Mechanic 1975; Wallack and Kretz 1981); (6) emergency room use (Kelman and Lane 1976; Weinerman et al. 1966); (7) doctor shopping (Greene, Gillings, and Salber 1979; Kasteler et al. 1976; Olsen, Kane, and Kasteler 1976); (8) patient satisfaction (Alpert et al. 1970; Breslau 1982; Breslau and Mortimer 1981; Fisher 1971; Kasteler et al. 1976; Linn 1975; Ware, Davies-Avery, and Stewart 1978); (9) efficiency and duplication (Alpert et al. 1970); and (10) appointment keeping (Alpert et al. 1970; Becker, Drachman, and Kirscht 1974; Deyo and Inui 1980; Hurtado, Greenlick, and Colombo 1973; Poland 1976).

The attention being given to the role of a primary care gatekeeper

(or managing physician) in controlling utilization and costs in Medicaid programs and IPA-model HMOs and to integration of a capitated form of payment with the managing physician supports the view that this is an important area of study.

DEFICIENCIES IN CURRENT KNOWLEDGE

Concern with the relationship between the patient and provider is not new; some of the early medical care studies identified the importance of the pattern of obtaining care and the relationship with a source (Anderson and Sheatsley 1959; Koplin, Hutchison, and Johnson 1959; Solon, Sheps, and Lee 1960a, b). However, with the exception of the work of persons who have addressed the interpersonal role aspects of the physician-patient relationship, most of whom are sociologists, there has been little research describing the characteristics of the relationship, its determinants or its impact. Only one author, Solon (Solon 1967; Solon and Rigg 1972), whose original papers were done with Sheps and Lee (Solon, Sheps, and Lee 1960a, b), has made a concerted effort to define the characteristics of the relationship from the patient's perspective. Even less has been done on defining the relationship from the provider's perspective and almost nothing exists about the relationship between the provider and patient perspectives.

Various authors have recognized the dearth of material. Wallack and Kretz (1981) stated, "Some research into the impact of patient loyalty on medical-care use already exists, but much more needs to be done." However, they do not cite any existing research. Kasteler et al. (1976) noted, "There appears to be almost a complete dearth of research pertaining to doctor-shopping." And Olsen, Kane, and Kasteler (1976) stated, "to our knowledge there are no studies of the frequency with which doctor-shopping actually occurs or the factors that may be associated with shopping." Ashcraft (1978) noted, "Studies . . . are lacking . . . of the effect of the duration of prior relationships on consumers' decisions to relinquish them." Ware, Davies-Avery, and Stewart (1978) reported, "Continuity of care, or regularity of care source, is another infrequently measured dimension of patient satisfaction." Goldberg and Dietrich (1985) noted that "few if any comparisons of the continuity of care that generalists and specialists provide to identified primary care patients have been reported." Shear et al., in a 1983 report on a study of the effects of continuity on quality, conclude that "future research . . . is required to determine whether continuity has a causal association with medical care outcome."

In regard to the patient-physician relationship, Caterinicchio (1979)

stated, "medical sociology is replete with studies describing and exploring the many social, cultural, symbolic, psychological, behavioral, situational and interpersonal dimensions of this important dyadic relationship. In spite of these efforts surprisingly little is known about the situational and interpersonal process-related variables which contribute to the development and maintenance of a successful treatment relationship." According to Aiken and her coauthors (1979), "little is known about the severity of the lack of primary physician services as seen by patients or practicing physicians." "Little research has been done on who has a regular source," noted Lave et al. (1979). It seems reasonable to conclude that no group of related variables that is mentioned as often, and that probably is as important, remains so poorly defined and studied. Most of these quotations are from articles published since 1978, which attests to the currency of this assessment of the state of our information.

The importance of this area of study is demonstrated by the long list of references that report a relationship between having a usual source, a personal physician, continuity, a number of sources, comprehensive care, or a managing physician and such health system behaviors as use, preventive use, timing or delay in use, site of use, choice, compliance, satisfaction, and efficiency. While it will be argued that most of these studies are not definitive, and that inadequacies in definition, measurement and conceptualization have contributed to their limitations, there is clear evidence of important relationships that need elucidation. Also, the large number of claims that there is inadequate knowledge about continuity, doctor shopping, the doctor-patient relationship, and determinants of having a usual source are adequate to establish that deficiencies exist in our knowledge. Therefore, no further attention will be given to addressing the first two objectives of this article. The literature reviewed in detail in subsequent sections was selected to fulfill the other objectives of the article, that is, to describe the definitions and measures that have been employed and to permit discussion of their adequacy, to provide a summary of existing information about behaviors, and to provide background for the definitions and conceptualization that are presented.

As a basis for organizing the remainder of the presentation and as an initial step in conceptualizing and defining the study area, the existence of three separable concepts is postulated. The three are "patient commitment to a source", "managing or responsible physician", and "patient-provider concordance". Patient commitment to a source (Patient Commitment) is the phrase being employed for the existence of a relationship with a source of care and the characteristics of that relationship

from the patient's perspective. The term "commitment" was used in the same sense by Lave et al. (1979).

Managing or responsible physician (Managing Physician) is the phrase being used for the existence of a relationship with a patient and the characteristics of that relationship from the provider's perspective. Koplin and Daniels (1953) and Koplin, Hutchison, and Johnson (1959) used the phrase "managing physician" in the same sense as it is employed here. Patient-provider concordance (Concordance) is the phrase used for the fit—the congruence—between the patient (Patient Commitment) and provider (Managing Physician) perspectives.

Patient Commitment, while primarily a function of patient characteristics, is influenced by the patient's perception of the Managing Physician. Similarly, while Managing Physician is basically a function of the characteristics of supply, the provider's perception of Patient Commitment will influence Managing Physician. Each party's view of the other's behavior derives from their interaction during the care process and from the outcomes of care, particularly satisfaction. The degree of congruence in the roles, expectations, and behaviors between client and provider is Concordance.

The patient-physician interpersonal relationship is excluded from this analysis; the focus here is on the structural, longer term, sustained aspects of the relationship rather than on the behaviors occurring within a visit. Although it is obvious that the interpersonal relationship is related to the concepts that characterize the ongoing relationship and are being discussed here, it is excluded for the sake of simplifying the conceptualization and limiting the size of the presentation. Once Patient Commitment, Managing Physician, and Concordance have been defined and measured in a useful way, it will be possible to study their association with the interpersonal (interaction, communication) relationship.

EXISTING DEFINITIONS AND LITERATURE

Each of the three concepts, Patient Commitment, Managing Physician, and Concordance, is discussed in a separate section. These sections propose and discuss a definition and then review the existing literature. Although the existing literature contributed extensively to the development of the suggested definition, and it would seem logical to review that literature first, it is clearer to present the definition first. After the separate sections on Patient Commitment, Managing Physician, and Concordance, a conceptualization is presented of the relationships among these concepts, the factors influencing the degree to which the concepts exist, and

the effects of the concepts on performance. Figure 3 on page 338 portrays the overall conceptualization, which is discussed further at the end of the article.

The following section begins with a definition for Patient Commitment and discusses its measurement. Then the literature is reviewed. Two types of literature deal with Patient Commitment: articles meant to establish the degree to which patients have a source, and articles that employ the existence of a source as a variable to explain other behavior. Almost all of the research presented in this literature is approached from the patient's perspective and is based on patient reports. The literature on the extent of having a source includes studies of doctor shopping, HMO out-of-plan use, the characteristics of people who have a source, and measures of commitment to a source. There is no literature that addresses the validity of patient-provided information on usual source. Areas of research are noted where a measure of Patient Commitment as an independent variable would seem useful in explaining the behavior under study.

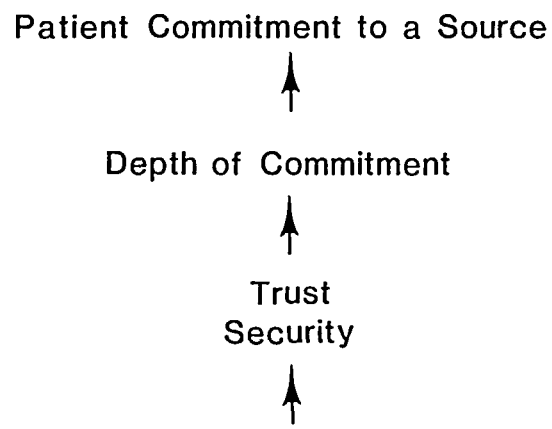
PATIENT COMMITMENT TO A SOURCE (PATIENT COMMITMENT)

Definition

Patient Commitment is the depth and breadth of a patient's attachment to a source: the importance of having and keeping that source, and the range of types of care for which the patient perceives that source should be used. From the patient's perspective, the *depth of commitment*—importance of keeping—reflects the level of *security* with and *trust* in the source or sources. The dimensions of depth from the patient's perspective are access,[1] personal treatment, and the therapeutic aspects of care. Does a patient perceive that he or she has a source (sources), trust in or reliance on that source (sources), an interpersonal relationship with the provider(s), and a degree of certainty about the source (sources)? (See Figure 1.) The *breadth of commitment* is the range of areas of need or care that the patient identifies as being met by the source—well care, sick care, emotional care, emergency care, obstetrical care, skin care, eye care, etc.

Patients may have a commitment to more than one source because either the breadth of the commitment is not great or the depth of commitment is not great. This may reflect a narrow scope of physician practice (the scope of a physician's practice is characterized by the ages and sexes of patients seen, the systems or conditions treated, the severity and/or

FIGURE 1



complexity of conditions treated, and the procedures done) or a shallow physician concept of responsibility, both of which are key dimensions of Managing Physician as presented later. While it is reasonable to hypothesize that breadth of commitment promotes depth, breadth may not be essential to a high degree of commitment. The type of care, defined in terms of its critical nature to the patient, may mean that narrow breadth can be related to depth of commitment.

In studying Patient Commitment it will be necessary, at least initially, to obtain descriptions of the number of sources and measures of depth and breadth of commitment to each source. Questions about the importance of keeping a source or interest in seeking a source may provide the means to scale depth. The existing and expected tenure of commitment and the expected role of a source when other providers are needed are additional dimensions of depth of commitment. Breadth could be measured in terms of areas of need or services for which the source would be employed. To establish the causes and effects of variation in Patient Commitment, the measures of depth and breadth should be related to the characteristics of the patients, the Managing Physician, the Concordance, and areas of performance such as utilization, compliance,

efficiency, cost and satisfaction. These relationships will be discussed further in the final section about the overall conceptualization.

Extent of Having a Usual Source

Aday and Andersen have long been involved in efforts to measure access, and the patient's report of having a source is employed as a proxy for access.[2] Aday (1975) used the terms "regular family doctor" and "regular source of care", and regular source meant a "particular medical person or clinic (the party) usually goes to when sick or for advice about health". In another paper, Andersen and Aday (1978) employed a slightly different criterion for having a regular source of care. It was "whether people routinely see one particular medical doctor or osteopath when they need medical advice or treatment". Persons who regularly employ a clinic—or do not see one particular doctor—were classified as not having a regular source in the latter publication while they were so classified in the former. In a publication from the Robert Wood Johnson Foundation (1978), summarizing the 1976 survey of access done by Aday and Andersen, the categories for having a source were "a regular physician" and "a regular source of care but without identifying a particular physician". Those with "a regular physician" were also referred to as having "a physician they see regularly".

Based on data collected in 1970, Aday and Andersen reported that: "Approximately 11 percent of the sample could identify no medical person or place they went to for medical advice or treatment on a routine basis." In the 1976 study undertaken for the Robert Wood Johnson Foundation, Andersen and Aday estimated that 12 percent of the total U.S. population did not have a regular source.

Kasper and Barrish (1982) have written a report on usual source for the National Center for Health Services Research, using data collected in 1977. This work follows closely the studies of Andersen and Aday. The definition used is: "Usual or regular source of care: Any specific site of care whether a physician's office, clinic, health center, hospital outpatient department, or other place customarily used when sick or otherwise in need of health care or advice." The wording employed, "customarily used", is different from Aday and Andersen's "usually" or "routinely"; these may not be important differences, but it would be useful if the same wording were employed in studies that are meant to serve a similar purpose.

In 1982, Aday and Andersen were involved in another study of access sponsored by the Robert Wood Johnson Foundation. This study (Aday and Andersen 1984; Aday, Fleming, and Andersen 1984) was done as a telephone interview; their two prior studies were household inter-

views. The respondents were asked, "Is there one person or place in particular you usually go to when you are sick or want advice about your health?" The phrase "regular source of care" is used in the article. Statistics were reported on the "Percent with a Particular MD or Osteopath", the "Percent with No Particular MD or Osteopath", and the "Percent None". Although the pattern of having or not having a source remained similar among types of persons across their studies, the percentage of respondents with no source declined slightly from 1976 to 1982 and the percentage with no particular source increased.

The 1984 Aday and Andersen article focused on the question of whether the position of the poor in regard to access had improved over time. Since the definitions of low, medium and high family income and the data collection technique changed across studies, it is difficult to compare the findings. Although the central city, low family income and uninsured respondents reported no source less often in 1982 than in 1976, the declines were no greater than—and were sometimes less than—the declines for other respondents. Overall, the portion of the population with no source of care in 1982 was the same as Aday and Andersen found in 1970, 11 percent.

Kasper and Barrish (1982) estimated that "14.2 percent of this population did not have a usual source." Over 9 percent of those in the study "didn't know" or "didn't answer". Given this, it would be more meaningful to have stated that 76.6 percent reported having a source rather than that 14.2 percent did not have a usual source. These emphases certainly are different from a policy perspective, since the facts translate into an additional 23 or 24 million people not having a source. Reports from Andersen and Aday do not include information on "don't know" or "didn't answer". If their studies also had 9 or 10 percent of the respondents answering this way it would help account for the very few people reporting no source (i.e., the 11 and 12 percent in their 1970, 1976 and 1982 studies).

Andersen and Aday and Kasper and Barrish, given their focus on measuring access, are trying to capture whether a person has at least one doctor or one place he or she usually goes. They probably obtain a measure of whether the patient perceives that there is a source to which he or she *can* go. There is no identification of those with multiple sources, the degree of commitment or importance of the relationship to the person, or the range of services that the usual source provides. Given the differences in the range of services provided by the different types of source of care and the relationships which seem to exist between Patient Commitment and important measures of performance, a richer measure of usual source would be useful even for the purpose of providing a proxy for access.

Validity of Usual Source

Studies of the extent to which a regular or usual source exists seem to have produced inconsistent and questionable findings. For example, in baseline studies of communities, where neighborhood health centers developed later because the populations were considered to be underserved, about 90 percent of those interviewed reported having a usual source of care. More specifically, in the areas of New York City that were studied, between 5 and 8 percent reported no source; in Atlanta it was 7 percent; and in Charleston, S.C., it was 8 percent. Only in San Francisco and Kansas City did those without a usual source exceed 15 percent (Okada and Sparer 1976).

How is it reasonable for over 90 percent of the population in an underserved area to have a usual source of care, if there is any meaning to this concept in terms of access, commitment or provider responsibility? Maybe these communities were not underserved? Wallack and Kretz (1981) stated, "In fact the lowest-income persons are sometimes less likely to describe themselves as having no source of care than are higher-income persons." Yet, Aday (1975) stated, "the poor are generally less apt to have a family doctor." Are they also less apt to have "a usual source"? The 1976 Andersen and Aday survey data showed only 14 percent of the "low income" and only 10 percent of "rural southern black" respondents without a "regular source" (Robert Wood Johnson Foundation 1978).

The very high frequency of having a usual or regular source may relate to the way the information was solicited. The impact of the specific question asked on the information collected can be seen from a study by Weinerman et al. (1966) which asked about both "where you usually go" and "having a regular doctor". When asked, "Where do you usually go when you need medical help?" 80 percent of the respondents named a source while 20 percent were coded "no consistent pattern" or "no previous medical care". The sources reported most frequently were private physician (37 percent), hospital clinic (13 percent) and the emergency service at the hospital where the study was done (25 percent). When asked, "Do you have a regular doctor, one you usually go to?" 51 percent of the same population said yes. Is the difference in response attributable to people with a "regular doctor" not usually going to that doctor when they need care, to their having a "regular doctor" at a clinic, or both? Given the differences elicited by Weinerman et al., it is difficult to interpret responses to a question that simultaneously employed the phrases, "Your own doctor, the one you usually call or the one you called most recently" (Cahal 1962).

Relative to the meaning of a person's statement about having a source, Lave et al. (1979) stated:

> If an individual responds positively to a question such as: "Do you have a place where you generally go for medical care?" the individual must have had sufficient contact with the source to remember it, and must identify with this source and have made some *commitment* to it. (Emphasis added)

That a positive response implies commitment must be questioned. Kingstrom (1983) reported that, although only 11 percent of his sample reported no usual source, 38 percent reported an interest in finding a different source. Also suggesting that reports of having a usual source or, in this case, a family doctor may have uncertain meaning, Kane (1969) found that 92 percent of the population in rural Kentucky—which could have been considered underserved—had a physician they considered to be their family doctor. Yet, 27 percent of the families had no utilization in two years; the percent of individuals with no utilization would be much higher.

Zwick (1972) presents data from an Office of Economic Opportunity study of 21 health centers that clearly portray the problem in using usual source to mean commitment. He reports:

> 72 percent of the user families considered the health center their "usual source of care". . . . However, among those reporting the center as their "usual source," for most centers, 20 to 30 percent indicated that their last physician visit was to another facility . . . Up to 40 percent stated that they go to another source for the treatment of their most limiting condition.

Thirty percent of those who joined the Health Insurance Plan of Greater New York (a closed-panel HMO) and were required to use the plan physician in order to obtain covered services reported that their prior physician was their "regular doctor" (Anderson and Sheatsley 1959).

What is the meaning of having a usual source or regular doctor if these numbers are correct? Is inaccurate information being obtained, or are our assumptions about a usual source meaningless? Are the questions asked in a manner that elicits solely whether the respondent knows of a place to obtain care, or is there a systematic bias in the respondents' answers, or both? Questions about usual source or, even more so, about having a personal physician or family doctor may not be neutral. It seems to be that the socially acceptable response is yes; having a doctor may be seen as a characteristic of stability, appropriate behavior, or concern with health. This would account for some of the seeming lack of meaning to

the reported information about having a usual source or regular doctor; probably even more important is that questions about usual source and having a usual source are too general to elicit responses that capture the respondent's pattern of seeking care or commitment, or even access.

Those with a Usual Source

The quotation from Lave et al. (1979), noted earlier, that there is almost no analysis of the characteristics of those having a regular source compared to those that do not (or of those having multiple sources) could be termed a half-truth. There had been some analyses, but they were only partially informative. The various Andersen and Aday publications, already cited, did report the percentage of people with a specific characteristic that have a source. However, their variables were all sociodemographic ones and were presented as separate bivariate analyses. The study by Kasper and Barrish (1982) did the same.

Table 1 presents, for people with different characteristics and for the population as a whole, the percentage of people without a source as reported in the Andersen and Aday and the Kasper and Barrish studies. Since the population subgroups in each study were defined in different ways and are not exactly comparable, the authors' original terminology is employed in each case. Although the patterns are similar, the Kasper and Barrish estimates for those without a source are higher than those of the three Aday and Andersen studies for all population groups and for the total population. One difference between the Andersen and Aday studies and the Kasper and Barrish study was the inclusion in the latter of a category for "didn't answer" or "don't know" which accounted for over 9 percent of the respondents.

The population segments that most often had a source of care are children, those age 65 and over, females, whites, urban and non-SMSA residents, and those above the poverty level. The higher probability of having a source among children, those 65 and over, and females seems to reflect both need and the pattern of use of well and preventive care. While not presented in the table, having a usual source was not related to education in the Kasper and Barrish study. This is somewhat surprising because the uninsured, the poor, blacks and Hispanics—groups that tend to have lower education—less often had a source. The relation of education to having a usual source will be discussed again later in the article.

Kronenfeld (1978b) published an article that reported the differences in regular source by characteristics of the individual similar to those noted above. The actual definition of regular source was not given. In this study

Aday and Andersen[1] *1970*		*Robert Wood Johnson Foundation Study*[2] *1976*		*NCHSR Study*[3] *1977*		*Aday and Andersen*[4] *1982*	
SMSA, other urban	10	Suburban residents	13	SMSA	15.1	SMSA, other urban	10
SMSA, central city	15	(SMSA, not central city)				SMSA, central city	12
Nonwhite	16	Urban blacks	16	Blacks	19.7	Nonwhite	13
Rural farm	12	Farm residents	7	Other (than SMSA)	12.4	Rural farm	7
Below poverty level (<$6,000)	17	Low income (below $7,999)	14	Medicaid Less than $12,000	15.0 17.1	Low income (<$15,000)	16
Above poverty level	9	High income ($15,000 and above)	11	$20,000 or more	12.2	High income ($25,001 +)	8
65 and over	11	Elderly (65 and over)	9	Medicare 65 or older	10.8 11.4	65 or more	7
Age 1–5	6	Children (1–5)	5	Less than 6	5.9	Age 1–5	4
Age 18–34	14	—	—	19 to 24	20.4	18–34	17
—	—	Spanish heritage Southwest	17	Hispanic West	18.8 17.0	—	—
Male	13	—	—	Male	16.3	—	—
Female	9	—	—	Female	12.3	—	—
—	—	Rural southern blacks	10	—	—	—	—
Total	11	Total U.S. population	12	Total population	14.2	Total	11

*The terms for the characteristics are those employed in the original reports.

[1]Aday, L. A. and Andersen, R. *Access to Medical Care*. Ann Arbor: Health Administration Press, 1975.

[2]Robert Wood Johnson Foundation. *Special Report: A New Survey on Access to Medical Care*. Princeton: The Foundation, 1978; or, Aday, L. A., Andersen, R., and Fleming, G. V. *Health Care in the U.S.: Equitable for Whom?* Beverly Hills: Sage Publications, 1980.

[3]Kasper, J. A. and Barrish, G. *Usual Sources of Medical Care and Their Characteristics*. Data Preview 12, DHHS Publication No. (PHS) 82-3324. Hyattsville: National Center for Health Services Research, 1982.

[4]Aday, L. A. and Andersen, R. M., "The National Profile of Access to Medical Care: Where Do We Stand?" *American J. of Public Health* 74:1331–39, December 1984.

of 1,329 individuals from 455 families in Rhode Island, the six sociodemographic variables related to having a regular source were age, income, race, payment source, education, and sex. Bivariate analyses revealed significant differences by age, income and sex: the young and old more often had a source than the middle age groups, the higher the income the more frequently there was a source, and females more often had a source than did males. While 83.6 percent of the blacks had a source, compared to 91.1 percent of the whites, the difference was not significant. There were very few blacks in the sample. Relative to the type of source, blacks, those with Medicaid and those with low incomes—three highly correlated characteristics—less often used a private physician than did others.

In an article about utilization as a measure of access which employed path analysis, Andersen and Aday (1978) presented a regression with "particular doctor seen" (not "having a usual source") as the dependent variable, and the number of MDs per 1,000 population, doctor visit insurance, family income, education of household head, race, and age as independent variables. The equation accounted for only 4 percent of the variance. While all of the variables (except education of head of household) were significant, this is partly an artifact of the very large number of observations. The two most powerful variables were supply of physicians, which had a negative relationship to having a particular doctor, and race (white), which had a positive relationship. This probably reflects that rural inhabitants (low supply areas) and whites more often have a doctor as their source, while blacks and urban inhabitants (high supply areas) more often have an institutional source or no source.

Luft, Hershey, and Morrell (1976) found that, "Relative to those with a usual source of care, those without a usual source of care are more likely to be poorer, male, the head of a large family, a more recent resident of the community, less well educated, living on a farm, non-Anglo, and less well covered by insurance." These are highly correlated characteristics. Given that the study site was a rural area in California, the description suggests that adult, male migrant farm workers were those without a usual source. The authors also reported that persons without a usual source have less need—fewer symptoms and less chronic illness.

The only article with a primary focus on explaining the relationship between a series of independent variables and reports of having a regular source of care is by Lave et al. (1979). Having a "regular source of care" was equated with a positive answer to the question: "Do you have a place where you generally go for medical care?" This is obviously a very weak, encompassing definition. The authors hypothesized that adults and children must be considered separately in studying factors which influence having a usual source, with the parent's status regarding regular source

a variable in the child's status. This is a useful way to include the effects of parent or other family member attributes while designating the individual, rather than the family, as the unit of analysis.

The sociodemographic variables used as determinants of regular source were age, sex, education, income, and race. "Individuals with more education and with higher incomes may tend to perceive medical care to be more efficacious and, thus, value having a regular source." Race was also assumed to influence perception of efficacy as well as influencing "interpersonal attitudes". Whether or not a person was on welfare was also considered because of "contact with a social worker who can provide information about available medical care". The authors hypothesized that the independent variables which would be the most important were previous utilization and anticipated need; they employed a measure of perceived health status as a proxy for these.

Length of residence in the community was also used as an independent variable and proved to be important for both adults and children. The primary respondent (adult) having a regular source was very important in explaining the dependent variable for children; health status and income were also important. While infants had a higher probability of having a regular source than did older children, the difference was not great. Differences by race were not large and the *t* statistic was small. The sex of the child was not important. Education of the head of the household did not follow the expected pattern; more education was not related to more frequently having a regular source.

For adults, the important variables contributing to having a regular source were time in the community, sex (males much less), health status (both perceived and number of limiting conditions), and being married. Also, blacks more often had a regular source. A number of variables—welfare, age and education—had small values. One wonders if the patterns found would have been different if the authors had employed a measure of usual source that went beyond "having a place you generally go".

A number of other studies (Ashcraft 1978; Andersen and Aday 1978; Kasper and Barrish 1982; Kronenfeld 1978b; Kuder 1982) also reported that the level of education did not correlate with having a usual source, having a regular doctor, or duration of the physician-patient relationship. This may not mean that more highly educated (i.e., college-educated) persons have no source of care, but rather that they may consistently use a number of sources. Studies will have to differentiate between not having *a* source and not having *one* source; existing studies have not always done this.

Kuder (1982), in a dissertation analyzing the relationship of price to

utilization of services, developed an equation to estimate usual source which was then employed to control for usual source in the equation explaining utilization. In a probit analysis explaining 70 percent of the variance, newness to the area had a strong negative relationship to having a usual source. Education was also negatively correlated with usual source: "Individuals who reported having some college education were less likely to report having a usual source." Neither income (which correlates with education) nor sex was related to having a usual source. Age was a statistically significant variable with a positive sign, but the actual value was small. Of the measures of need and utilization employed, chronic, conditions, disability days and hospital days were not important in explaining usual source, while "no need" and well visits were quite important. The author interpreted this pattern as "perhaps indicative that US (usual source) is a measure of an individual's level of concern about his/her future health rather than only the level of current health status *per se.*" In further support for this view, Kuder found that when illness visits were added to the equation they were not significantly related to having a usual source.

In characterizing those with or without a source or, more usefully, with different levels of commitment to one or more sources, it will probably be necessary to incorporate the following factors: exposure, which is a measure of time in the community and the level of need during that time period (with age and sex capturing some of this); prior use, particularly the "importance" of the use to the person or family; health concern and health beliefs; current need and health status; and the person's resources to purchase care. With such experiential-perceptual variables employed in the analysis, sociodemographic ones will probably decline in importance in explaining usual source or commitment. This hypothesis derives from the literature already reviewed, some of the research to be reviewed subsequently, and a general view of the existing studies on utilization which suggest that, as measures of need, health concern and resource availability have been developed and employed, sociodemographic variables have receded in importance.

Does the type of delivery system employed, HMO or fee-for-service, influence the extent of there being a usual source? Marcus (1981), using data from a household survey done in Los Angeles, found that HMO enrollees less often report having a regular doctor than do persons using the fee-for-service system (50 percent vs. 75 percent). Marcus's sample included very small subsamples (190) of enrollees from two HMOs. The question asked was whether "there is one person you usually see" for your health care. Differences in characteristics of those using the two systems—HMO and fee-for-service—in education, income, race, and

children in the household could account for the differences in responses. Different types of delivery systems probably do vary in the degree to which they provide one source or the patient perceives having a regular doctor. This relates to supply side differences in Managing Physician which will be discussed later. One would assume that a population using a multiprovider system—a large group, whether HMO or fee-for-service—would less often report seeing "one person" than would a population in which many persons use a single provider source.

In another article, Marcus and Stone (1984) refer to the Scitovsky, Benham, and McCall (1979) study of utilization in two prepaid plans to provide additional support for their own data which showed that HMO patients less often "identify with a regular doctor". One of the two prepaid plans in the Scitovsky study was the Palo Alto Clinic where most of the patients were fee-for-service and the physician "often" did not know the patient's payment status. Marcus and Stone considered this to be a fee-for-service system. The other plan was Kaiser. Since more Clinic patients than Kaiser patients reported "having a regular doctor", Marcus and Stone equate this to differences between fee-for-service and HMO systems. They also equate having "one person you usually see" with "having a regular doctor" and with "doctor-patient continuity". Although the findings do suggest that a relationship exists between type of source and having a regular doctor, the Marcus and Scitovsky studies did not prove that HMO enrollees less often have a "regular doctor" than do users of fee-for-service providers.

Doctor Shopping and Out-of-Plan Use

The definition of doctor shopping is no better developed than those of usual or regular source. Doctor shopping has been equated with seeking a second opinion, changing one's doctor, seeing another physician without referral, and seeking a physician. Doctor shopping in the sense of seeking a source when none exists must be separated from changing a source or from using additional sources when there is no expectation of changing the initial (central?) source. Doctor shopping should in some way be a reciprocal of having a usual source or a commitment to a source.

The findings of the doctor-shopping literature (Greene, Gillings, and Salber 1979; Kasteler et al. 1976; Olsen, Kane, and Kasteler 1976) are difficult to interpret or compare because different definitions of doctor shopping have been employed and there has been variation in the unit of observation, the unit of analysis, and the time period during which shopping was measured. Moreover, the studies did not establish if there was an existing source. The Kasteler and Olsen papers, which employed

data from the same study, reported that 4 percent of the respondents shopped for doctors in a year and "had an episode of illness during the previous year for which they consulted a second physician (or more) without referral". Sixty-two percent had changed doctors at some time "of their own volition". They also reported that shopping was related to low satisfaction. The Greene study reported that, in a year, 28 percent of the utilizers were "true shoppers"—"shoppers with no definable reason"—and 36 percent were "specialized care and free care shoppers".

The literature on out-of-plan use in HMOs (Anderson and Eggers 1976; Pope, Freeborn, and Greenlick 1972; Scitovsky, Benham, and McCall 1981; Luft 1981) seems directly applicable to doctor shopping. Out-of-plan use is a form of doctor shopping. There is no evidence that any attempt has been made to integrate this literature; there has been some effort to relate HMO out-of-plan use to HMO disenrollment (e.g., Hennelly and Boxerman 1983) but this literature makes no reference to the doctor-shopping literature.

Scitovsky, Benham, and McCall (1981) discussed "the problem of defining and measuring [HMO] out-of-plan use, which has troubled the literature on the subject". As with doctor shopping, there have been two sets of problems in such research: defining the behavior and establishing the basis for measurement. Issues of definition can be seen from the following questions: Is a referral for care outside the HMO, for which the HMO will pay, outside use? Is use of an outside service, that is not in the HMO benefit package, outside use? Is out-of-plan use, when a patient is not in the service area, outside use? Does it matter if the out-of-plan use is for a service given for free—immunizations or eye examinations given at school or by the health department? In regard to measurement, the issues are the same as those in doctor shopping: defining the units of observation (individual or family) and analysis (a shopper vs. frequency of shopping), and establishing the period of analysis. A good resource on measurement issues in out-of-plan use, in addition to Scitovsky, Benham, and McCall (1981), is Luft (1981, chapter 11).

Scitovsky, Benham, and McCall (1981) studied out-of-plan use by Stanford University employees enrolled in either Kaiser or the Palo Alto Clinic. The enrollees were identified as to their "regular source"; the alternatives were specific plan physician, plan but no specific physician, outside physician, or no regular source. Those with a specific plan physician least often used an outside service, those in the plan but with no specific physician slightly more often used an outside service, and those with an outside physician or no regular source far more often used outside services. Because of colinearity between the regular source variable and outside use, regular source was not included in the multivariate anal-

yses. A measure which reflected commitment might have proved useful. Considering enrollees of both plans and of free and not-free out-of-plan use of covered services, the multivariate analyses showed that dissatisfaction, having additional insurance, short tenure in the plan, and smaller families were significantly and positively related to out-of-plan use. However, the amount of variance explained was very small.

Other studies also have shown that dissatisfaction is the key to out-of-plan use and doctor shopping (Marquis, Davies, and Ware 1983). There is little else that is consistent across these studies. Luft (1981) states about this literature, "the data concerning out-of-plan use, while seemingly objective, are really a hodgepodge of confusing, ill-defined figures." The same can be said for the literature on doctor shopping.

A measure of Patient Commitment should be an independent variable in all studies that try to explain seeking a doctor, changing doctors, seeking a second opinion, or out-of-plan use. Unless Patient Commitment is meaningfully defined (and probably Managing Physician and Concordance as well), studies of doctor shopping and out-of-plan use cannot provide information which will contribute to understanding the cause of such behavior.

Measures of Commitment

Although numerous studies employ characterizations of usual source as a proxy for access or commitment in explaining health system behaviors, there are few sources on the meaning of commitment or on alternative characterizations of usual source.

The Center for Applied Research at Henry Ford Hospital focuses much of its research on marketing and, therefore, patient satisfaction, commitment to a source and choice. One of their studies, presented in a paper by Kingstrom (1983), had the objective of understanding the acceptance of new providers and programs and the role of patient loyalty (commitment to a provider) in this process. Kingstrom rejected usual source as a useful measure of commitment, since "individual differences in the strength of patient ties among those with a usual source are not measured" and because almost everyone reports having a source. He believes that patient satisfaction measures are a better measure of patient ties to existing sources; this belief is based upon the relationships that have been found between satisfaction and utilization, doctor shopping, and choice of program. The relationship of satisfaction to out-of-plan use and doctor shopping has already been noted here. He argued, however, for the need for measures beyond satisfaction, measures of "provider loyalty . . . the patient's psychological attachment to his/her provider". Bas-

ically, Kingstrom was trying to apply the marketing concept of brand loyalty.

Using data from a small sample (207) of elderly, mainly female, residents of one housing unit, measures of having a usual source, patient satisfaction, and "provider loyalty" were related to the dependent variables "provider search" and "chances of using a new program". The researchers developed a seven-item scale to measure provider loyalty. Respondents were asked whether they were interested in finding a new source ("search") and "the chances . . . of using" (choice) a new program available to the population from which the sample was chosen.

Both an existing provider relationship and measures of satisfaction (except satisfaction with "accessibility", which was not defined) were found to be highly correlated with provider loyalty, and all three were important in predicting "search" and "choice". Given the correlation among the measures, it is hard to know if provider loyalty adds to understanding search or choice. The provider-loyalty scale included questions about inconvenience and willingness to consider another usual source, and these overlap with (or are the same as) both the satisfaction measures and the measures of the two dependent variables. While the ideas presented in this article are useful, the particular measure of provider loyalty is no more useful than a series of questions about satisfaction. However, the findings did suggest that sociodemographic variables were not important in either search or choice and that health status was only marginally important in provider loyalty.

The studies that have directly addressed the characterization of commitment to a provider are those by Solon, Sheps, and Lee (1960a, b) with subsequent papers by Solon (1966, 1967), Solon and Rigg (1972), and by a student of Solon's, Schumaker (1970, 1971, 1972). The framework and findings are important in that they:

1. Established that multiple sources are frequently used and that this probably needs to be considered in any analysis of Patient Commitment. This contrasts sharply with the approach of asking about *a* source or *a* personal physician;
2. Attempted to provide some gradations of the importance of sources (e.g., "central source");
3. Identified the family or household as a possible unit of analysis; and
4. Identified security—"trust or reliance"—as a key dimension of Patient Commitment.

The earliest paper by Solon, Sheps, and Lee (1960a) presented "analytic concepts" of current sources, central source, role of central source, and configuration of medical care pattern. The concept of centrality within

multiple sources is probably the most useful contribution. Until the recent paper by Kingstrom which was discussed immediately above, the Solon, Sheps, and Lee papers were the only known attempt to measure the importance of the source to the client:

> The individual's "central" source of care is the focal point of his current pattern of medical care. It is the most important facility or physician to whom he turns when he needs medical advice or care—that is, the most important to the patient in terms of having his greatest trust or reliance in that source. The patient may use that source as a referral point, or as a continuing source of verification or reassurance. As this suggests, the criterion of "centrality" does not point to where the individual necessarily receives the greatest volume of his care. Regardless of type of care or amount of care which it provides, it is the source to which the person looks for his direction signals in obtaining care, or the source in which is his mainspring of assurance regarding his condition or his care. This may, of course, coincide with the source of services which predominates in volume: but it need not do so to meet the criterion of "centrality".

The final papers in the sequence tried to "identify not only the component sources of a person's medical care pattern, but their respective roles". Descriptive dimensions included: volume source of care, central source of care, configuration of medical care, and supplemental sources of medical care. In relation to these dimensions, the "compactness and cohesiveness" of the medical care pattern were then measured. Another dimension of the medical care pattern, "in terms of the family", was also used, and this was defined in terms of "centrality, variation dimensions and homogeneity".

There was a heavy emphasis on capturing the trust-centrality pattern, which is referred to here as the depth of Patient Commitment. Less attention was paid to defining the range of care with which the patient identifies the source—the breadth of Patient Commitment.

Solon's attempt to define and measure the patterns found led to elaborate description. It becomes increasingly difficult to differentiate among the dimensions he employed, particularly among "volume source," "central source," "configuration," and "supplemental sources." No attempt was made either to relate these descriptors to differences in behaviors in the system, or to retain only those descriptors that significantly influenced performance. The final framework presented was so elaborate as to be useless for analytical purposes. But, as noted earlier, these articles contributed a number of important concepts; this is especially true when one considers that the basic ideas date from 1960.

Usual Source as an Independent Variable

Having a usual source—having access or an existing relationship—has frequently been employed as an independent variable in studies of utilization or choice of source. Scitovsky, Benham, and McCall (1979), in a paper on utilization of physician services in two prepaid health plans available to Stanford University employees (another paper from the study was discussed under out-of-plan use), employed "regular source of care" as an independent variable. As already noted, regular source of care had three possibilities: (1) specific plan physician, (2) being in a plan but no specific physician, and (3) an outside (nonplan) physician or no regular source. This definition has three dimensions to it: having a source or not, the source (plan or nonplan), and having a particular physician or not. Those with a specific plan physician used more visits overall and more preventive visits than those using the plan with no specific physician, while those with no regular source or an out-of-plan source used the fewest visits, both overall and preventive. Both satisfaction and health status were also related to use; it would be interesting to know the correlation between them and the categories of regular source of care. It would also be useful to know more about the characteristics of those with the different categories of regular source and to have operational measures of the categories of regular source.

In a study of determinants of utilization presented in two publications, Hershey, Luft, and Gianaris (1975) and Luft, Hershey, and Morrell (nee Gianaris) (1976) employed "usual source of care" as one independent variable. In the 1975 publication, it was defined in terms of no usual source or whether the source was a private physician or a salaried physician. Usual source here captured both the existence of a source and the compensation system of the physicians in the source. Having a usual source proved to be an important variable in predicting use irrespective of the type of source, although those with a salaried source (health center physicians) used more than those with a private practice source. Also, "the substantially lower utilization of people with no usual source of care was found to be only partly attributable to the different socioeconomic characteristics and health status measures of this group" (1976). It is not possible to discern the behavior being captured in characterizing the source as private or salaried physicians, especially when salaried equated with health center. Was this capturing the incentives to the physician, the personal characteristics of physicians, or some dimension of patient relationship to a source? The patient's actual relationship to the source is not known; while the papers refer to "having a regular doctor", it is not

known if the patients named a physician or a source, nor are any characteristics of the relationship known.

The findings in the Scitovsky and Hershey-Luft papers are representative of the findings about the relationship of usual source to utilization; those with a usual source use more, including more preventive services. There are uncertainties about the pattern of causal relationships in most of this research. Is it that those who use more develop a usual source, is it that having a usual source influences use, or is it that those with more need both have a source and use more? The problem of establishing the causal patterns is a recurring one in regard to usual source—Patient Commitment—and will be discussed in the final section of this article.

In a study of HMO enrollment (Berki et al. 1977), the existing patient-physician relationship was included as one determinant of enrollment. "The presence of a preexisting physician-patient relationship has often been considered to be a good enrollment predictor, particularly as an indicator of prior access to a provider." The measure of the physician-patient relationship employed was whether or not the respondents reported that their usual source of care was a private physician. "Having a private physician as the usual source of the care was the most powerful and consistent predictor of enrollment in [the open-panel HMO]." No usual source or a source other than a private physician was associated with a higher probability of enrollment in one of the closed-panel HMOs.

This categorization of usual source does not directly capture the doctor-patient relationship in terms of its hypothesized relationship to access or in terms of the importance of the relationship. Berki et al. (1977) noted, "the source of care measure does not differentiate the strength of any reported relationship." But, the authors assumed that having a private physician implied, on the average, more of a relationship (and more access) than not having a private physician or not having any source. Basically, a private physician implies both access and, at the least, some sort of relationship, while a nonprivate and/or multiprovider site may mean only access. This seems to parallel the view of Okada and Sparer (1976) that, "A private source of care is preferred as the usual source of care to hospital public clinics because of continuity and the less impersonal nature of the care."

The literature on the relationship of usual source to choice of HMO can be summarized by quoting Berki and Ashcraft's (1980) review article. They stated, in regard to factors inhibiting enrollment, "the most important is the cessation of an ongoing relationship with a provider, except in those instances where the provider is part of the plan—IPAs. When an IPA is not available and there seems to be potential cost advantages to

HMO enrollment, preference for a continuous provider relationship is frequently expressed by retention [of existing health insurance]." Refined measures of usual source that capture the commitment to or importance of the source should add greatly to understanding choice behavior.

In an article on use and choice (Berki and Ashcraft 1979), the University of Michigan researchers employed enrollment in a closed-panel HMO as an access-usual source variable in addition to the categories of not having a usual source and having a private physician as a source. This adds an economic aspect to the usual source variable, as the HMO benefits are different from those of the other plans. Their findings support, in general, the hypothesis that not having a usual source is correlated with less use, both sick and preventive. Those with a closed-panel HMO as a usual source had more preventive visits but not more sick visits. Measures of the patient-physician relationship should not intermingle the effects of having a source, the relationship with that source, and economic differences among the sources.

In a study of the effects of satisfaction on continuity (with the authors equating low continuity with a change in medical care provider), Marquis, Davies, and Ware (1983) defined usual source in terms of the source that the patient saw most often in the preceding year—even if that source was an emergency room. They then measured continuity by the number of "initial contacts" with the usual source in the subsequent time period. Persons without use in the initial year had to be excluded because their usual source could not be established. One wonders how users with equal amounts of use between or among sources were handled. Defining usual source in terms of the person's self-reported "majority source" within one year probably led to a large number of instances in which usual source, as the person perceived it, was distorted.

The need to define more precisely and to measure Patient Commitment in order to better understand utilization behavior is clear from articles by Kronenfeld (1978a, 1980). The earlier paper states, "The purpose of the article is to examine the effect of the number of affiliations that a person has with different medical care providers during the year on number of ambulatory care visits. . . . An affiliation refers to the stated existence of a relationship between a particular care giver and a particular care client of the provider." In an equation that accounted for over 40 percent of the variation in use of ambulatory care, number of affiliations was the most important variable. It was even more important than measures of need and far more so than age, sex, education, or income. Clearly then, affiliations are important and there is a need to understand these relationships. This is particularly true because the author found that: "The number of affiliations has almost no relationship with the extent of use

of any affiliation." But, the analytic value of affiliations was limited—it was rendered almost useless by its operational definition; affiliations were simply a count of all the sources named. Thus, a contact with an emergency room was counted as an affiliation, as were physicians who were named but not seen in a year. There is a need for a measure that operationalizes the concept in a more useful way than was done by Kronenfeld.

A literature is developing on "search costs" in seeking and using medical care that is relevant to Patient Commitment (Colle and Grossman 1978; Friedman 1978; Kuder 1982). The argument is that there are costs associated with seeking a source such that people with a source have lower costs in using services than those without a source. Those with a source should, therefore, have higher use. Usual source is employed as one measure of the cost of seeking care. The data support the hypothesis. This argument could also be extended to suggest that people may retain a less than satisfactory source because of the costs (time, effort, uncertainty, anxiety) of seeking a new source. Thus, the "search costs" hypothesis may prove useful in explaining the relationship between having a source and use, as well as that between dissatisfaction and seeking a source or changing source.

Recently, Thomas and Penchansky (1984) employed "usual source" as an independent variable to represent need. Those with a usual source were assumed to have more need than those without a source, and the more recently the source had been obtained the more the need. This use of usual source adds to the confusion about the meaning of usual source; it is another example of the question of causality that will be addressed at the end of the article.

There is little purpose in reviewing additional definitions and uses of usual source, regular source or regular doctor. The observations to be made about the studies are:

1. the diversity in definitions and in the questions used to elicit information;
2. the very limited view of Patient Commitment that most capture, and the few attempts to define the different dimensions of Patient Commitment; and
3. some characterize the type of supply and explain little about Patient Commitment.

Although this concept and/or variable consistently proves very important in utilization and choice studies, and reports consistently show that most

people have a source, there is great uncertainty about the meaning of these findings because of observations 1, 2 and 3.

Research Areas Requiring a Measure of Patient Commitment

Appointment breaking and termination of therapy are areas of analysis that would seem to require a measure of Patient Commitment (and Managing Physician) as an independent variable. In their 1973 paper, Hurtado, Greenlick, and Colombo suggested that the doctor-patient relationship and the tenure of the relationship were probably important in influencing appointment keeping. Yet, the 1980 review paper on the subject by Deyo and Inui never mentions the doctor-patient relationship. However, they do identify continuity as a key variable. Continuity is probably not independent of appointment keeping and a strong relationship between the two does not elucidate the causal relationships. It is the patient's commitment to the source that needs to be defined, not the continuity. In the conceptualization to be presented, continuity is a process measure reflecting Concordance; appointment keeping is another process measure. Patient Commitment and Managing Physician determine Concordance and should be included in studies of variation in these process measures of performance.

Delay in seeking care is another area of analysis which would seem to benefit from inclusion of a variable characterizing Patient Commitment. Three early literature reviews (Blackwell 1963; Kutner and Gordon 1961; Kutner, Makover, and Oppenheim 1958) referred to studies that reported that a patient's usual pattern of use is key to the pattern of use when symptoms of a significant problem, say cancer, develop. Yet, none of these reviews discussed the doctor-patient relationship. Patient Commitment would certainly seem important in the timing of seeking care, especially if there are "search costs" for those without a source. Steinwachs and Yaffe (1978), in a paper on timeliness of use, asked: "What is the effect of having a regular provider within a practice setting on access, health care seeking behavior, and outcomes?" They reported:

> The differences in timeliness of care between patients identifying a regular provider in the Department and those not point to the need for a better understanding of the effects of continuity. The population studied is already receiving care from one organization with a single unified medical record. But, patients identifying a usual provider were less likely to receive delayed care, independent of whether or not they saw their regular care source. Having a usual

> provider also increased the likelihood of being judged not to need care unless the usual provider was seen. These findings could be interpreted that patients having a usual provider are experienced in accessing the Department and the differences in timeliness are simply a result of better access. Providers seeing their regular patients may simply have a different perspective on the need for care based on a more comprehensive knowledge of the patient. However, provider continuity may also contribute to the greater patient/provider congruence regarding appropriate care seeking behavior.

In summary, the concept of Patient Commitment, as defined earlier in this section, incorporates the concepts which others refer to as usual or regular source, commitment, or affiliation. The Patient Commitment concept is important in influencing health system behavior, and a definition and operational measures that are more encompassing and precise than those employed to date are needed to study the impact of the concept on behavior. The refined measures should characterize the number of sources, whether the commitment is to a provider or to an institution, the depth of commitment, and the breadth of commitment. The discussion of the overall conceptualization of Patient Commitment, Managing Physician, and Concordance presented at the end of the article continues these observations.

MANAGING OR RESPONSIBLE PHYSICIAN (MANAGING PHYSICIAN)

This section begins with a definition of Managing Physician and reviews the small amount of literature about managing physician or primary physician. This literature is of three types: prescriptive statements about the need for and desirable characteristics of primary or managing physicians; studies of the extent to which such providers exist; and studies of the impact of such providers on performance. Issues of definition and measurement in the articles are identified.

Definition

Managing or Responsible Physician is defined as the provider's perception and behaviors relative to the depth and breadth of responsibility for the health care needs of the patient. Put another way, Managing Physician characterizes the aspects of the organization of practice that determine the degree to which one provider or place takes responsibility for a patient's needs and the linkage over time in provider(s), site(s) or information. The *breadth* of responsibility can be defined in terms of the

range of need or care the provider initiates or responds to: preventive, well, sick, and rehabilitative care; physical and emotional care; in emergencies or not; for an individual or across members of the family. The *depth* is the provider's view of the degree to which he or she is the patient's responsible resource. There are two dimensions to depth: whether it is an individual or organizational responsibility and whether it is a responsibility limited to one's scope of practice or extending to the management of all care.

The depth dimension of Managing Physician reflects the provider's view of his or her role both over time for services within the usual scope of practice and when care is needed outside that scope of practice. The former is the tenure or the term of responsibility: is it for a visit, a procedure, an episode of care, or a period of time? The role which seems to be implied for a strong Managing Physician is the provision of care, or responsibility for care, across episodes of illness and not solely during one episode. Some extended period is assumed, which leads to concern with the tenure of the relationship. Tenure should not be equated with continuity. While tenure obviously influences continuity, the two concepts are not the same. Tenure is defined here as a characteristic of both Patient Commitment and Managing Physician; continuity is an outcome of Concordance.

The other aspect of depth—when a patient requires care outside the Managing Physician's scope of practice—defines the provider's role when specialists are needed or the patient is hospitalized. This is sometimes referred to as the concept of coordination. A strong Managing Physician role calls for the physician to coordinate much or all of the patient's care.

In the overall conceptualization presented later, the degree of continuity and coordination are attributes of Concordance, not of the Managing Physician. Both coordination and continuity are referred to as continuity. While certain attributes of the organization of practice and the provider's perception of role influence Managing Physician, the degree to which continuity is achieved is a function of the interaction of Managing Physician and Patient Commitment. The following support the view that continuity is a measure of process and influenced by both patient and provider attributes: "Continuity is a process variable that accounts in part for the relationship between system organization and physician utilization" (Hennelly and Boxerman 1979); "Continuity of care is viewed as being an intermediate outcome of the utilization experience as well as being directly affected by patient and provider characteristics" (Shortell et al., 1977).

Breadth, the second dimension of Managing Physician, is the range of need across which responsibility exists, defined in terms of physical,

emotional and social needs or in terms of well, preventive, sick, emergency, chronic, and rehabilitative needs. A strong Managing Physician assumes breadth. This is the concept of comprehensiveness, which here refers to the provider's role, not to the range of services that are covered by health insurance or provided by an institution. Although insurance coverage and range of services provided obviously influence Managing Physician, they are not the same as Managing Physician.

In some settings the Managing Physician—or one of the Managing Providers—may not be a physician. It could be a person employed to make clinical decisions who is a nurse practitioner, physician assistant, or midwife. Any formulation of Managing Physician must incorporate the role of such providers and consider the nonphysician provider's relationship to the physician provider. This allows for characterizing the Managing Physician in various types of team care settings.

Existing Definitions

There is much literature that attempts to describe a desirable role for the primary physician. Almost all of the sources equate primary care with continuing care and case management responsibility and, therefore, are part of the literature relevant to Managing Physician. Most of this literature developed from a concern with the supply of primary care providers, and it is general and prescriptive, not empirical. The primary physician is described in terms of:

> First contact and continuing care. (Alpert and Charney 1973)
>
> Managers, advocates, educators and counselors for their patients while also serving as coordination of other professionals involved in primary care. (Draper and Smits 1975)
>
> an overall responsibility for his patient, and thus for all disorders which bear on his patient's health. Responsibility for the psychological and social aspects of illness is implicit in this. (Susser 1963)
>
> comprehensive and continuing health care, including not only the diagnosis and treatment of illness but also its prevention and the supportive and rehabilitative care that helps a person to maintain, or to return to, as high a level of physical and mental health and well-being as he can attain . . . We suggest that he be called a *primary physician.* (Millis Commission 1966)
>
> The family physician is a personal physician . . . first contact . . . provides a means of entry . . . evaluates the patient's total health needs, provides personal medical care . . . and refers . . . while preserving continuity . . . assumes responsibility for . . . comprehensive and continuous health care and acts as leader or coordinator

> . . . Comprehensive health care includes preventive, diagnostic, therapeutic, rehabilitative and health-maintenance services. (Willard Committee 1966)
>
> Perhaps the most important aspect of the training (of internist as a primary physician) should be the development of a sense of responsibility for long-term care of the patient, as well as an awareness of the importance of social and psychologic factors in illness. . . . The prevention of illness should be emphasized rather than treatment of late manifestation of disease. Certain skills should be acquired, such as a knowledge of office gynecology, counseling on sexual and marital problems, and a reasonable knowledge of dermatology. (Ebert 1972)

In addition to the focus on continuing care and on managing or coordinating all care, there is agreement in this literature on a broad role for primary care physicians—"educators and counselors", "psychological and social aspects", "a knowledge of office gynecology, counseling on sexual and marital problems, and a reasonable knowledge of dermatology".

In 1953, before the era of general concern with the shortage of primary care that led to the definitions quoted above, the staff of the United Mine Workers of America Welfare and Retirement Fund were concerned about the effect of an absence of a managing physician on utilization, quality of care, and cost to their program. An article by Koplin and Daniels (1953) of the United Mine Workers' staff, while general and prescriptive, is useful in that it addressed the existence of a responsible physician and the tenure of responsibility separate from whether the physician was a specialist or generalist (which is being referred to in this article as "scope of practice"). The articles quoted above referred solely to the generalist-primary care physician. However, Koplin and Daniels stated, "The coordinator of a physical rehabilitation team, whether he be psychiatrist, orthopedist, neurologist, or internist, functions as a managing physician during the temporary period the patient is in his hands. But it is the general practitioner who has the primary responsibility for management." They placed considerable emphasis on the role of the managing physician "in coordinating the services of specialists so that continuity of care is maintained".

Ashcraft (1978) employed the phrase "managing physician" and related it to patients having or seeking a usual source. In attempting to explain the choice of a closed-panel HMO by high utilizers who formerly employed emergency or outpatient departments, she suggested, "They may have perceived an opportunity of establishing a relationship with a managing physician . . . as a way of reducing the fragmentation of services associated with settings where no single physician has responsibility for providing total care."

That physicians assume different responsibility roles—even physicians with a similar scope of practice—became clear to the author during his research on referrals in group practice (Penchansky and Fox 1970). The variations in role manifested themselves in a number of ways, including differences in: whether the physician perceived the patient as his or her patient or as a patient of the group; whether, when specialists were needed, the primary physician remained involved in the care; whether the primary physician selected or suggested a particular specialist for the patient or simply referred the patient to a service, e.g., "to surgery"; and the ratio of obtaining "consults" (no transfer of responsibility) to "referrals" (a transfer of responsibility). While differences in referral rates among physicians in large part reflected differences in scope of practice, the differences also seemed to be related to the extent to which physicians viewed their role as that of Managing Physician.

Extent of Managing Physician

Aiken et al. (1979) reported on a study meant to establish the degree to which specialists provide primary care. The study was sponsored by the Robert Wood Johnson Foundation and the U.S. Department of Health, Education, and Welfare and was executed at the University of Southern California (USC). It focused on the role of specialists in primary-generalist-continuing care and their contribution to the supply of such care. Aiken et al. concluded that specialists provide a large amount of primary-generalist-continuing care. Two publications by Mendenhall et al. (1979a, b) also reported on this study.

The USC study employed a classification of five types of patient encounters and the responses were based on provider perceptions. This classification, a useful first step in characterizing the Managing Physician role, mixes a number of dimensions which probably need to be kept separate: episodic/continuous; comprehensiveness/breadth/scope of care; initiation/referral; and amount of care given to the patient. These relate to the dimensions of depth, breadth and duration that will be discussed subsequently. The categories are:

> *First encounter:* The patient has not been seen by the physician previously, and the physician's role is not that of a consultant to another physician.
>
> *Episodic care:* There is an absence of continuity in the physician-patient relation, even though the physician indicates that he or she has seen the patient before. The patient is not a regular patient, although the doctor may believe that he or she provides most of the patient's care.

> *Principal care:* There is evidence of continuity; the physician reports having seen the patient before and considers him or her to be a regular patient. Comprehensiveness is suggested since the physician indicates that he or she provides most of the patient's care.
>
> *Consultative care:* The visit results from a request from another physician or agency for consultation. Continuity and comprehensiveness are not features of such encounters. Although the patient may have been seen by the physician before and may be regarded as a regular patient, the physician does not provide most of the patient's care.
>
> *Specialized care:* These encounters show evidence of continuity; the patient is a regular recipient of care, but a limited scope of care is provided. The patient has been seen before, but the physician does not provide most of the care.

Principal care was discussed in terms of "continuing responsibility" and a "commitment to meeting the majority of the patient's medical needs" and was equated with generalist care and primary physician. Note the use of the word "commitment"—this is a strong Managing Physician role. It is assumed that "first encounter" was included as a category because the physician cannot tell at the time of their initial visits if certain clients will be "episodic care" or "principal care" patients.

The Aiken article would have added value if "regular patient" and "most of the patient's care" were defined. Also, it probably is necessary, at least in the initial stages of refining these concepts, to measure separately the dimensions of depth and breadth of Managing Physician and the duration of the relationship. Descriptions are needed of the range of concern or care provided, the physician's role when other physicians are involved, the expected duration of the relationship, and whether the physician assumes that he or she is only one of the patient's sources, the central source, or the only source.

Using 1976 reports from generalist and specialist physicians on their principal care activities and estimates of the overall use of primary care, Aiken et al. concluded that the available supply of physicians could have served 62 percent of the population with principal care. The Andersen and Aday survey in 1976 for the Robert Wood Johnson Foundation, discussed earlier, reported 78 percent of the population having a "regular doctor" and 10 percent using institutions or several doctors. Kasper and Barrish reported 77 percent with a source in 1977. It would seem that the Aiken et al. estimate of 62 percent should be compared to the Andersen and Aday figures of 78 to 88 percent—the higher end of this range probably is the appropriate one—or to Kasper and Barrish's estimate of 77 percent. If the USC methodology is valid, it would suggest that from the provider's perspective the population overreports having a usual source

or regular doctor. This certainly seems to be the case if the concept is to mean more than simply knowing a place where one can get care. Whatever the basis for the differences, there is clearly a large discrepancy between the provider and patient views. As will be discussed next, the specialists' reports seem to exaggerate their principal care role and the differences are probably even greater than reported.

The background documents (Robert Wood Johnson Foundation 1981) to the Aiken paper report that specialists with narrow, procedure-oriented scopes of practice (e.g., ophthalmology and otorhinolaryngology) and those who usually deal with only one dimension of care (e.g., dermatology and psychiatry) were included. Such specialists are usually ill-prepared to do general or primary care. Yet, given the response patterns of these physicians, 17 percent of the dermatologists' encounters, 59 percent of the psychiatrists' encounters, 42 percent of the ophthalmologists' encounters, and 23 percent of the otorhinolaryngologists' encounters were classified as "principal care-majority of care" encounters. Some even reported being the "majority of care" source for the patient's entire family. This datum suggests a flaw in the methodology and an overestimate of the degree to which specialists serve as Managing Physician. A report on the reliability and validity of the data collected in the Robert Wood Johnson Foundation-University of Southern California study concluded that the encounter classifications have low validity (Perrin, Harkins, and Marini 1978). Therefore, the discrepancy between the Aiken estimate of available primary care and the reports of those with a usual source is probably even greater than noted above.

The USC study did not address either the efficiency or effectiveness of specialists in the primary care-principal care role, or whether the primary-generalist-continuing care they provide is different from that provided by nonspecialists. There is a need, if descriptions are to be useful, to separate the providers' "responsibility role" (depth and breadth) from the providers' scope of practice. A major contribution of the Aiken paper is the response it generated; other studies have been conducted to test the Aiken conclusions regarding the scope of practice of physicians who act as a primary or managing physician, as well as to test the effect on health system performance of variation in the primary or managing physician's scope of practice. These papers are discussed below.

In response to the Aiken et al. publication, researchers (Spiegel et al. 1983) from the Rand Corporation and the University of California-Los Angeles, noted:

> its conclusion concerning primary care has a major limitation: the identification of a primary-care patient was based largely on whether individual physicians claimed that they provided the majority of care for a patient. The actual number of visits that patients made to

> this physician versus other physicians, patients' perceptions of whether this physician was their primary physician, and whether patients actually saw this physician for routine common complaints or health maintenance were not assessed.

They also noted:

> Lack of agreement over an appropriate definition has created a concomitant lack of precision in identifying those who deliver primary care.

Spiegel and her associates set out "to determine whether three methods of defining a primary-care physician would result in different proportions of generalists and specialists being designated as primary-care physicians". The three methods related to (1) the type of physician named to receive multiphasic screening results, (2) the type of physician providing the majority of care, and (3) the type of physician providing care for common conditions. These will be referred to, respectively, as the multiphasic screening method, the majority of care method, and the common condition method.

This study did not establish whether the persons had an ongoing commitment to the source identified or used. Ninety-eight percent of the respondents named a source to which multiphasic screening results would be sent; however, it is doubtful if this is a measure of an existing relationship and commitment. Note that this research was based on patient reports, not reports by providers.

In the multiphasic screening method, 88 percent of the people named a generalist—general practitioner, general internist, general pediatrician—to receive the reports. The majority of care method found that 34 percent of the people who received care in a year saw a specialist for all or a majority of that care. This is higher than the Aiken estimate (for the relevant year) that specialists provided 17 to 19 percent of the principal care. These are visits to *a type* of physician, not *a physician*, and they do not measure continuity with a source.

Using the common conditions method, about 10 percent of the people used a specialist for upper respiratory infections, hypertension, and a general examination, while about 90 percent used a generalist for care for *each* of these. The percentage of people who received *all* of the care for these three reasons from one type of physician is not known. If only 10 percent of such care was provided by specialists and not necessarily one specialist, how can specialists have a significant role as principal care providers?

The most important finding from this study seems to be the difficulty in defining primary physician and explaining the large amount of use of multiple sources. If continuity is a basic outcome of Managing

Physician, Patient Commitment or Concordance, these concepts would certainly seem to exist in a very weak state in this study community.

Another project that relates to the study by Aiken and her colleagues was an attempt by Goldberg and Dietrich (1985) to establish whether or not there are different levels of continuity when family physicians, general internists and subspecialty internists act as "primary" physicians. The authors were asking: Does it make a difference in continuity if subspecialists act as primary care physicians?

The study has a number of methodological limitations, as well as limited generalizability. Only 40 physicians from three practice categories were studied and there were only 368 patients identified with these physicians. All physicians were full-time employees of three large, multispecialty group practices. Only care delivered within the groups was studied. Seventy-three percent of the eligible physicians agreed to participate. The study patients were identified by the physicians as patients who had been seen before, received regular care, and received "the majority of care from their physician"; given this, it would be expected that continuity would be high for all study patients of all participating physicians, whatever the physician's scope of practice.

Patients who had been seen in a current three-day period were the base population from which the "majority of care" cases were drawn. The patients' utilization within the group for one year prior was studied. These criteria suggest both active cases and high continuity. Another major problem is that the authors did not consider utilization outside the group when computing continuity.

In spite of the limitations, the research is a valuable initial effort at incorporating the physician's scope of practice into study of managing physicians and primary care. Seventy-three percent of the patients seen during the three days by family physicians and 72 percent of the patients seen by general internists were classified by these physicians as "majority of care" patients; 58 percent of the patients of subspecialty internists were so classified. The amount of continuity ("usual provider continuity"—the proportion of visits that patients receive from their primary physician) hardly varies for majority of care patients of physicians with different scopes of practice. There are no statistically significant differences among the three types of practitioners or among the five medical subspecialties represented; the mean continuity score for the one-year study period was about .8, with the general internists highest at .83 and the rheumatologists lowest at .73. The number of physicians seen per year was also studied. Although there are no statistically significant differences, the patients of general internists and cardiologists saw an average of less than one other physician in the year, while the patients of rheumatologists saw almost two other physicians in the year.

Goldberg and Dietrich attempted, in looking at medical subspecialist performance, to control for whether the patient's problem and/or diagnosis was within the subspecialist's scope of practice. Although doing this was an excellent idea, the number of observations was so small as to make the statistical analysis useless.

Given the measure of continuity employed, the score is not independent of the level of utilization (the lower the utilization, the higher the probability of continuity). Goldberg and Dietrich controlled for this in their attempt to measure continuity with subspecialists for cases within and outside the subspecialty scope of practice. Yet, this was not done in the analysis among the three broader types of practitioners (family physician, general internist and subspecialist internist). If the utilization rates vary by scope of practice, the "true" continuity may not be similar for majority of care patients being seen by the three types of physicians even though the continuity scores are similar.

Dietrich and Goldberg (1984) also employed data from the same sites, physicians and patients described above to establish the relationship of the scope of practice of the managing physician to the provision of preventive services. They asked: When subspecialist internists function as managing physician does the patient obtain the same preventive services as when generalists (family physicians and general internists) function as managing physician? For patients whom the physicians identified as their "principal care" patients, there was no difference in the frequency with which common preventive services were received in a one-year period. There was very large variation among physicians in preventive services provided, but the scope of practice of the physician did not contribute to explaining the difference.

In summary, there has not generally been a differentiation between "primary" and "managing or responsible" physician. It is clear that there are sources of "first contact" or primary care—to treat acute, minor, self-limiting, or even chronic conditions—that do not have attributes ascribed to the managing physician. It is also clear that specialists—and not simply "primary specialists" such as general internists, general pediatricians and obstetrician-gynecologists—act as managing physician. However, the roles these specialists exhibit may be of different breadth and depth and of different tenures (e.g., a procedure or episode) than the role of a generalist. The lack of differentiation within articles (e.g., Aiken et al.) among primary physician, continuing care, and generalist care exemplifies the problem. There is a need to define both the physicians' scope of practice and their responsibility role with a patient in order to understand the differences that may exist; the articles by Goldberg and Dietrich were an initial effort toward this end.

There has been inadequate attention to the existence and impact of

multiple sources and to developing a formulation for Managing Physician in the manner that Solon, Sheps, and Lee attempted for Patient Commitment. However, beginning steps are being taken; this was seen with the Aiken et al. article. Suggested ways to improve the Aiken formulation of types of encounters for use in initial research were presented. Any formulation that incorporates multiple sources will have to take physician scope of practice into account. Having, as one of a number of physicians, a specialist in a "parallel practice" area, such as ophthalmology, dermatology or psychiatry, will probably prove of very different consequence than having a specialist in a "hierarchical practice" area, such as neurology, cardiology or surgery.[3]

Effect of Managing Physician

What research exists about the impact of the patient's having a primary provider with a broad, comprehensive role who coordinates care when other providers are employed and where processes to promote a continuing relationship exist? Most of the literature is about programs or experiments where the source of care had attributes that are a part of the Managing Physician concept or had care processes that Managing Physician is expected to foster. There are no studies that definitively established that differences in Managing Physician caused differences in the performance of the health system. It is not that studies show no relationship; it is that there have been few studies that employed a measure that captures the physicians' definition of their role or the comprehensiveness, continuity, coordination, or tenure of the relationships for the patient (let alone measures of all of these or a combined measure) as independent variables. And, of the few that did, most had other methodological or data limitations.

Even in regard to continuity, where there is a literature both on measurement[4] and on impact, the findings are limited. Although the studies of the impact of continuity are discussed in this section because existing studies identify continuity as an attribute of the provider, continuity is conceived of here as an outcome of Concordance. Managing Physician relates to the existence of structures that promote continuity (note the phrase "continuity structures" in the following quotation), such as an assigned physician, an appointment system, accommodating call-ins and walk-ins, ability to contact one's physician on the phone, requiring referral from a managing physician before a specialist can be seen, and after-hours coverage. But the actual continuity achieved is a function of these attributes of Managing Physician as they relate to Patient Commitment; this is Concordance. Continuity is one manifestation of the degree of Concordance.

In reviewing the literature on the effect of continuity, Becker, Drachman, and Kirscht (1974) noted:

> Two central difficulties have hampered attempts to ascertain the efficacy of physician continuity. First, despite the almost universal faith in this approach (and the higher costs it may entail), there have been very few empirical investigations of continuity structures. Second, those studies with controlled designs have either been limited to particular medical populations or problems, or have had to employ control populations of staff or patients that were not comparable to their counterparts in the experimental (continuity) setting.

Steinwachs (1979), in the introduction to an article about alternative measures of continuity, noted the lack of means to measure the impacts: "the lack of analytically useful measures of provider continuity has made it impossible to isolate the effects of continuity on the patterns of use and compliance."

In discussing the contradictory findings from studies of continuity, Breslau and Haug (1976) stated:

> One possible explanation for diverse findings is the imprecise measurement of continuity revealed in the literature. For example, this variable is rarely operationally defined or measured in a way which permits differentiation of levels of continuity, or even if continuity was in fact achieved.

The "diverse findings" of the literature on continuity to which Breslau and Haug referred incorporated both studies of the effect of continuity and studies of the priority patients place on continuity. Patients do not seem to rank continuity with one provider high relative to concerns about ability to obtain care when needed and promptly. However, this does not mean that continuity does not affect performance—including patient satisfaction and utilization.

Breslau and Haug's own study, which included a measure of each client's continuity, suggested that lack of continuity led to more illness visits. They reported that while a patient's "own physician can often give advice on the telephone, a physician who is unfamiliar with the case is more likely to require an office visit." Given the very small sample in the study, the findings remain suggestive rather than definitive. The same problem holds true for a paper by Poland (1976) which reported that prenatal patients with more continuity of nurse practitioner care had a lower rate of broken appointments than those with less continuity; there were only 78 patients divided into three continuity groups.

A paper by Koplin, Hutchison, and Johnson (1959), like the one by

Koplin and Daniels (1953) noted earlier, dealt with the impact of a managing physician. Beneficiaries of the United Mine Workers Welfare and Retirement Fund who had experienced a large number of hospital admissions were assigned to a Fund-selected managing physician. Subsequent to the assignment, a significant decline occurred in the number of admissions for these persons. There are two problems with the study. First, since the study group had admission rates many times the average, one would expect some movement toward the mean; without either a control group or any control for need, the reduction in use cannot be ascribed to the change in physician. Second, while the role of the managing physician was described (but not actually measured), there was also a change in physician—not simply a change in practice patterns. There was also a change in payment method. Was this a study of the difference between good and poor practice, fee-for-service or retainer compensation, having one provider or many providers over time, or all of these combined? The findings are consistent with the hypothesis that a managing, responsible physician controlling a patient's care leads to "better" practice patterns. However, it is not reasonable to claim that the article proves the hypothesis. This study also suggests that the method of payment and organization of practice (an enrollment and assignment process) influence Managing Physician.

An assumption that a strong managing, primary practitioner creates more effective delivery patterns has been the basis for the design of a number of delivery-financing programs including Medicaid, Medicare, and network- or IPA-type HMOs. These are variously referred to as primary care gatekeeper, case-management, restriction, or lock-in programs. For one (Minnesota) Medicaid program, "The objective is to concentrate management of the recipient's care in the hands of a single primary physician. . . . The reason for this restriction is to improve the continuity and quality of care for the recipient while concurrently reducing Medicaid expenditures for unnecessary or inappropriate services" (Hoffmann-La Roche 1980). Additional objectives of some of these programs are to place the provider at risk through a capitation payment and/or to have one identified responsible provider for the enrollees (National Governors' Association 1982). There are no studies with adequate controls which definitively establish that such programs are more effective. However, there are data showing that the cost of previously high users who are enrolled in such programs is significantly reduced (Hoffmann-La Roche 1980). Although it is doubtful that nonenrolled recipients had parallel cost reductions, if high utilizers are the enrollment group—similar to the situation in the Koplin, Hutchison, and Johnson study—some reduction in utilization and cost is to be expected.

There are studies of the impact of introducing "comprehensive" care programs to an area or a population. One of the best known examples is a study of the introduction of "comprehensive family-focused pediatric" care at the Children's Hospital Medical Center in Boston in the mid-1960s (Alpert et al. 1968; Alpert et al. 1970; Heagarty et al. 1970). The initial article (Alpert et al. 1968) noted, "The absence of a single physician to provide both preventive and curative services precludes the development of any relationship between doctor and patient." The studies reported improvements in performance—more well visits, less sick visits, less hospitalization, more patient satisfaction, and better patient knowledge about when to use. The reason given for the reduced hospital use was: "It seems likely that physicians with a stable relationship with their patients are more comfortable in treating illnesses on an outpatient basis when the indication for hospitalization is not certain. Their knowledge of the family adds to their control of the situation" (Alpert et al. 1968).

This conclusion seems reasonable; note its similarity to the Breslau and Haug statement presented earlier. However, it cannot be assumed that the changes found were caused by introducing a strong Managing Physician role. This was a teaching program with turnover of physicians every one or two years, and physicians were available only about 25 percent of the time. There was no measure of the actual physician role or of the continuity between patient and provider, and other changes were introduced at the same time. Therefore, to attribute the changes directly to a changed Managing Physician role is not appropriate. But again, the general characteristics ascribable to a strong Managing Physician correlate with positive outcomes.

Neighborhood Health Centers (NHCs) were supposed to be comprehensive care programs—were supposed to introduce a strong Managing Physician—and it could be argued that studies about the effect of introducing NHCs reflect the impact of a strong Managing Physician. For example, the article selected for review here stated that, "one of the primary goals of neighborhood health centers is to provide continuity of care that will reduce the use of emergency departments." This paper by Hochheiser, Woodward, and Charney (1971) clearly established that the introduction of the NHC program reduced emergency room use. Unlike many of the studies of the effect of introducing an NHC on hospital or emergency room utilization, studies in which researchers faced significant data limitations, this study is very sound. It did not, however, measure Managing Physician or continuity. This was a study, basically, of the impact of increasing access to comprehensive primary care; it was not a study specifically about Managing Physician. Comprehensive care programs carry the assumption of a strong Managing Physician, but the

concepts of comprehensive care and Managing Physician are not equal to each other.

Two studies were reviewed in a paper by Gordis and Markowitz (1971) entitled "Evaluation of the Effectiveness of Comprehensive and Continuous Pediatric Care." One would assume that with this title the research would be specific to the concept of Managing Physician. In one study comprehensive care was provided by "a health team [with] a personal relationship of the patients to the health team . . . emphasized." In the other study, continuous care was provided by an assigned physician. There were no actual measures of continuity or Managing Physician. The two studies suffered from very small sample sizes (110 patients in one and 39 in the other), high dropout rates, a very short study period (one year and 15 months, respectively) and unusual populations (adolescent mothers and their infants, and Negro children or adolescents with rheumatic fever on oral penicillin prophylaxis). Little difference in outcomes was found between experimental and control groups. Even if the conclusions were based on stronger data, they would not be direct evidence on the relationship of Managing Physician or continuity to system performance as there were no actual measures of these variables.

Becker, Drachman, and Kirscht (1974) reported on a study of the impact of continuity which employed an experimental design and does not have some of the design limitations of other continuity studies. There was, however, a very short (one year) study period, and there was no measure of the degree to which continuity was actually attained. Staff and patients of the panel-continuity clinic were far more satisfied with a variety of dimensions of practice than were those in the clinic without assigned physicians or continuity. Additional measures of performance, such as patient waiting time, modification of health beliefs, appointment keeping, and disclosure of problems, also favored the continuity clinic.

There is one study that directly addresses the relationship of continuity to quality of care and that employs measures of continuity for the individual patient. Roos et al. (1980) use four different measures of continuity and both process and outcome measures of quality. The process measure was conformity with criteria for tonsillectomy and adenoidectomy, and the outcome measures were decreases in respiratory infection and otitis media. The authors employ 1973–74 data from the Manitoba Health Services Commission for persons 13 years of age or younger. No relationship between continuity and quality is found. A basic question that must be addressed is whether there is a reasonable rationale for hypothesizing that continuity should be related to quality with a surgical intervention of this type. Even if one accepts the hypothesis as reasonable, the finding is questionable because both the measures of continuity and

of outcome are a function of utilization. This problem is noted by the authors, and was also a problem in other studies discussed earlier in this article. Another problem is that, although the authors consider variables such as physician scope of practice (general practice vs. pediatrics) and group vs. solo practice in explaining variation in continuity, they do not incorporate these variables in the analysis of causes of variation in quality. With pediatricians referring their surgery to specialists while many general practitioners were doing their own tonsillectomy and adenoidectomies, both the continuity scores and the treatment source (generalist vs. specialist) are influenced, and there is confounding between the two factors.

In a statement on the role of the primary physician and effectiveness and efficiency in health care, Almy (1981) claimed "present fee schedules offer physicians excessively strong incentives to furnish technical services and insufficient encouragement to perform as the patient's advisor, counselor, and health advocate." He went on to relate the physician's role to the cost of care, noting that "confidence in the diagnosis of acute illnesses, especially when supported by repeated contact with the patient in the office or by telephone, breeds conservatism in treatment. This is one reason why the treatment of a specific illness usually costs more in hospital emergency rooms than in private offices or clinics for continuing care."

The appointment systems literature and the practice patterns of delivery systems establish that a known patient ("known" being a function of duration of relationship, utilization and continuity) requires shorter service time than a new patient. One explanation for this is that in seeing a known patient the provider has less need to establish the patient's risk factors.

The two papers by Dietrich and Goldberg (1984, 1985) discussed earlier have not been considered as part of the literature on effect of Managing Physician because all of the patients studied were identified as "majority of care" or "principal care" patients of the physicians. These studies, in a sense, held Managing Physician constant and evaluated the effect of variation in scope of practice; they did not look at variation in Managing Physician.

In summary, it is reasonable to conclude that comprehensive, continuity-oriented practice with the primary provider coordinating specialty care—attributes of a strong Managing Physician—leads to more satisfied clients and providers, and "better" utilization patterns (i.e., less emergency room use, less laboratory work, fewer sick visits, less hospital use, more preventive use, more efficient care, more compliance, and better

appointment keeping). However, it is not possible to be more precise about the impact of a strong Managing Physician role. It is not known, for example, if certain of the dimensions of Managing Physician are more important than others or if they influence particular behaviors. Furthermore, there is no information on the physician time cost that may be needed to achieve this extended role.

PATIENT-PROVIDER CONCORDANCE (CONCORDANCE)

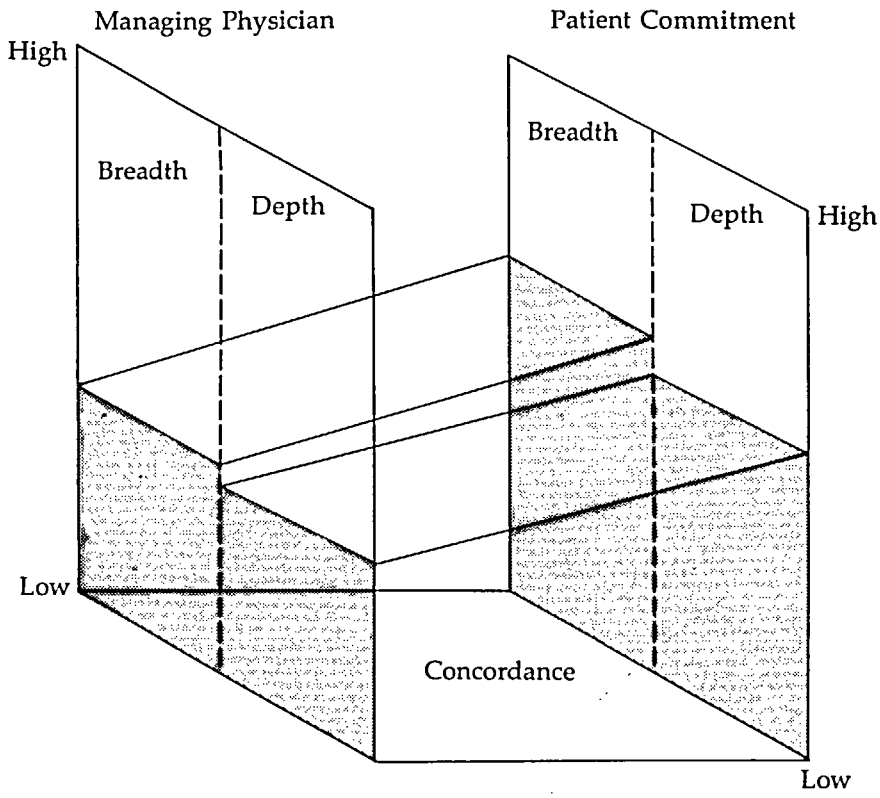
There is no literature on the fit between Patient Commitment and Managing Physician, which is termed Patient-Provider Concordance, or on the impact of Concordance on system performance. Therefore, this section on Concordance focuses primarily on definition and measurement.

Definition

Patient-Provider Concordance is the congruence that exists between Patient Commitment and Managing Physician; it is a function of the breadth and depth of each of these and the congruence between them. There are two parts: each party's (patient and physician) definition of its own as well as the other's respective role and the degree of congruence between the two. There can be a degree of divergence or congruence on both the breadth and the depth dimensions of Patient Commitment and Managing Physician. Figure 2 portrays the hypothesized relationship.

Managing Physician and Patient Commitment interact to determine Concordance and Concordance in turn reinforces or undermines Managing Physician and Patient Commitment. High congruence of strong Patient Commitment and strong Managing Physician should lead to processes and outcomes that reinforce Patient Commitment and Managing Physician. For example, high concordance on both breadth and depth should cause patient accommodation, appointment keeping, and continuity (including coordination) and have positive effects on utilization, compliance, satisfaction, and efficiency. These should further strengthen Patient Commitment and Managing Physician; "It is assumed that continuity promotes a stable doctor-patient relationship" (Breslau 1982). The existence of an interaction among Managing Physician, Patient Commitment, and Concordance is supported by the observations of Rogers and Curtis (1980): "It appears that this [the physician's] feeling of personal responsibility (even after regular office hours) grows, as continuity of care improves. It has also been suggested that the patient must accept certain responsibilities to maintain the 'continuity contract'."

FIGURE 2 Relationship of Managing Physician and Patient Commitment in Determining Concordance



Measures of Concordance

A direct measure of Concordance is the congruence between Managing Physician and Patient Commitment on each dimension. Indirect measures of Concordance are measures of the processes that Concordance is expected to influence—measures of "fit" between client and system. These areas of process performance include those already identified, continuity and patient appointment keeping, and others that would characterize provider "appointment keeping". These measure the provider's meeting client expectations by answering telephone inquiries or providing same-day appointments for patients with acute needs.

CONCEPTUALIZATION

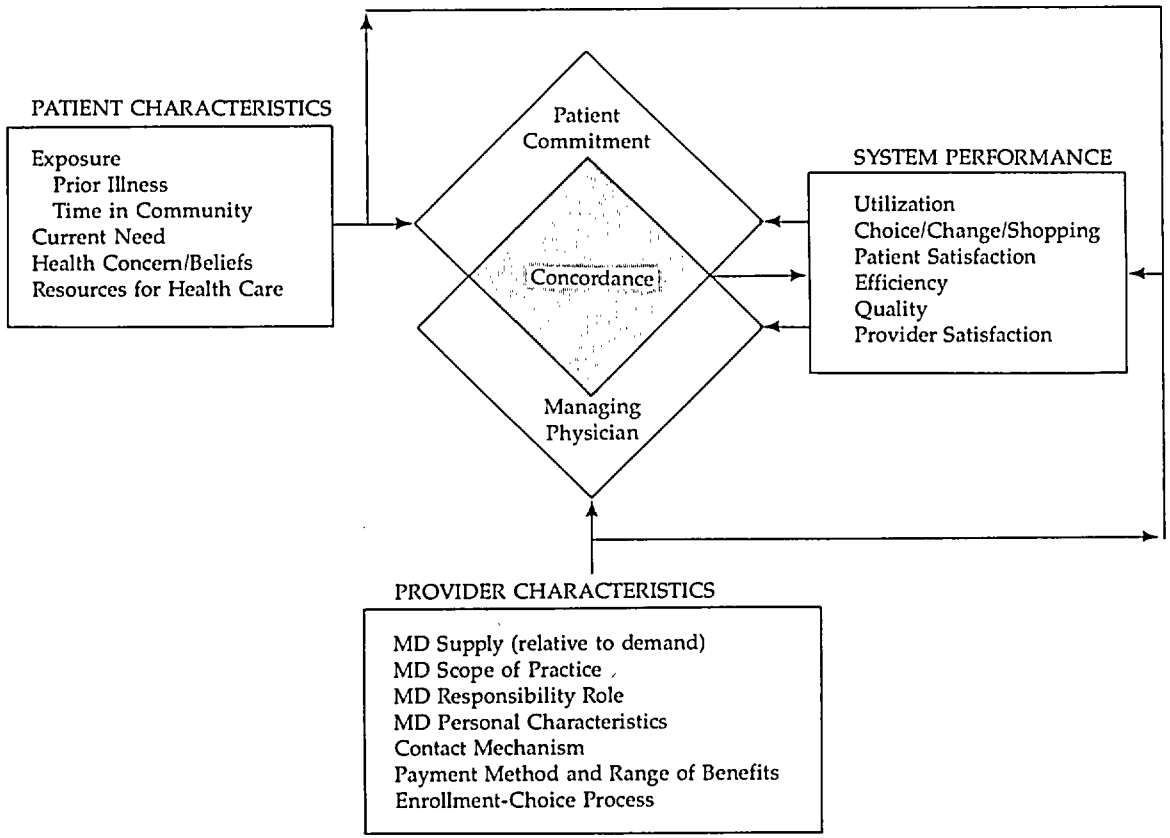
This section presents an overall conceptualization of factors determining Patient Commitment, Managing Physician and Concordance and the effects of Patient Commitment, Managing Physician and Concordance on system performance.

It has been hypothesized that three related concepts are needed for health services research and policy analysis to characterize the relationship between provider and patient. The three are Patient Commitment, Managing Physician and Patient-Provider Concordance. Concordance is a function of Managing Physician and Patient Commitment. Patient Commitment, while primarily a function of patient characteristics, is influenced by the patient's perception of Managing Physician. Similarly, while Managing Physician is basically a function of the provider characteristics of supply, the provider's perception of Patient Commitment will influence it. Each party's view of the other's behavior derives in large part from their interaction through the care processes that characterize Concordance and through the outcomes of care, particularly satisfaction. This conceptualization is portrayed in Figure 3.

The supply side characteristics assumed to be important in determining Managing Physician are characteristics of the provider, of the practice and of the provider's view of Patient Commitment. The provider variables are their scope of practice, their perception of responsibility role and, probably, personal characteristics such as age, sex and years of practice. The latter may prove to be encompassed within the provider's perception of responsibility role. The practice characteristics assumed to be important are the quantity of supply relative to demand, the existence of an enrollment and assignment process, the payment method, the range of covered or insured services, and the contact mechanisms—the appointment system, the ability to see the source provider, the call-in provisions, and the mechanisms for after-hours coverage. These capture the system's definition of provider responsibility and role relative to the client and the degree to which the system is organized to foster a Managing Physician.

The papers by Freidson and Mann (1971) and Freidson (1973) established that an enrollment process, capitated payment, and a broad set of covered benefits influenced patient expectations and the physician role. Also, a shortage of supply, a narrow scope of practice, an absence of insurance coverage for well and preventive care or office care, and highly structured or overloaded appointment systems can be expected to create a weak Managing Physician. Given the assumption that Managing Physician is influenced by Patient Commitment as well as by the patient's

FIGURE 3 Determinants and Effects of Patient Commitment, Managing Physician and Concordance



insurance coverage (or resources to purchase care), Managing Physician may not be identical for all the patients of one physician.

Among the key characteristics of the supply side in determining Managing Physician are the aspects of the organization that allow for a continuous relationship with the client. Continuity itself, however, is not an attribute of Managing Physician; it is viewed as an outcome of Concordance. Both provider and patient behaviors influence continuity.

It is hypothesized that Patient Commitment is determined by the patient's prior exposure, present need, health concern, beliefs about proper utilization and proper provider role, resources for purchasing health care, and perception of Managing Physician. As noted earlier, exposure—prior health need in the community—will influence both the existence of a source and strength of commitment. And, greater current need, more health concern and more resources will mean more of a desire for an ongoing relationship and the need and means to maintain the relationship. The sections of the article that deal with *Those with a Usual Source* and *Usual Source as an Independent Variable* provide the basis for the hypothesis on determinants of Patient Commitment.

While related, the concepts of Patient Commitment and Managing Physician may not be symmetrical. A provider could perceive that he or she is the patient's managing physician while the patient may not view this physician as the only or the primary source. In turn, a patient may perceive that a physician is his or her doctor or usual source while the physician has no reciprocal perception. This is probably the case with a large number of those reporting a regular or personal doctor. There may be large differences in expectations between the primary source and the patient about the ongoing role of the primary source when specialists and hospitalization are necessary. Certainly there can be—and often are—large differences in the two parties' perceptions of the appropriate breadth of the physician role.

The three sets of variables, Patient Commitment, Managing Physician and Patient-Provider Concordance, interact to influence system performance; the patient and provider characteristics are assumed to exert direct influence on system performance, but they also exert influence through their role in determining Concordance which, in turn, is assumed to influence and be influenced by performance.

The body of literature about the patient-provider interpersonal relationship has not been considered here. Certainly the interpersonal relationship between providers and patients—their roles, interactions and communications—would seem important to the concepts defined here and should not be ignored. A recent review article by Strecher (1982) verified this position, reporting that personal interactions influence com-

pliance, satisfaction and doctor shopping. The formulation of the three concepts and their relationships presented here should help in analyzing the patient-provider interpersonal relationship. At present, the inability to define and measure the structural and process variables within which the interpersonal ones operate causes difficulty in determining the amount and pattern of influence of each. Few of the existing papers on the doctor-patient interpersonal relationship attempt to define the existing Patient Commitment or Managing Physician. It is assumed here that the interpersonal behaviors influencing Concordance can be integrated within the framework, that they will be an important dimension of it, and that incorporation of measures of Managing Physician and Patient Commitment into the research on the interpersonal relationship will allow for increased precision in that research.

The conceptualization presents a complex pattern of interactions and feedbacks that will be difficult to disentangle. How can causal patterns be tested when, for example, it is hypothesized that a patient's health concern influences Patient Commitment, that Patient Commitment influences Concordance, that both Concordance and health concern influence use, that use influences the patient's health concern and Concordance, and that Concordance influences Patient Commitment? Only with longitudinal studies and forms of analyses that disentangle simultaneous events can such patterns be tested.

The problem of establishing causality can be identified in the papers about the impact of usual source on utilization, choice and satisfaction that were discussed earlier. Although the authors employed conceptualizations simpler than the one presented here, in that they related usual source directly to the dependent variable without incorporating Managing Physician or Concordance, the causal patterns were not clear. Scitovsky, Benham, and McCall (1979) reported a positive relationship between having a regular source and utilization of sick and well care. Does having a regular source cause more use because the provider is more concerned or brings the patient back for well care? Or, do people with higher health concern both use more and more often establish a relationship with a provider? Or, is it that using more may cause the development of a relationship? All of these are probably operative!

Berki and Ashcraft (1979), in discussing the positive relationship between the existence of a usual source and utilization, stated:

> It could be suggested that the relationship is in fact the reverse of the observed one. It is possible that the absence of a usual source is associated with fewer visits because those who are healthier, and therefore make fewer visits, are less likely to establish a continuing relationship with a provider.

They concluded that the causal direction is from usual source to use, but the data were not persuasive. Since the utilization and usual source data were from the same brief time period, the data cannot contribute to an understanding of the pattern of causal relationships among need, usual source and utilization. Prior need (exposure), current need and health concern probably influence use, which influences Patient Commitment. Patient Commitment then influences use which, once again, will influence Patient Commitment. However, if the literature on Managing Physician is correct, those with a good fit between Patient Commitment and Managing Physician will actually have lower use—particularly for minor sick care—than others. And, if a provider requires less time, testing and history taking with a known patient than with a new one, the Concordance would cause the same level of need to produce different levels of use.

The expectation that those with higher current need will have a usual source was the rationale of Thomas and Penchansky (1984) for employing the recent acquisition of a source as a proxy for need. Their data portrayed a negative relationship between the tenure of the relationship and recent utilization; those who recently acquired a source had higher use. It seems reasonable to conclude that current need *causes* use; that those without a source will seek one (or a new type of need may cause the acquisition of a new source); and that, upon entering the system, persons with a new source will have higher use than persons with the same level of need who have (and remain with) an existing source. In the sample employed by Thomas and Penchansky, those recently acquiring a source probably did have more need than those with no source or those having long tenure with a source. But, higher use probably reflected both the behaviors related to establishing a source and those related to need. Unless the existence of a source at a prior point in time is established, the causal pattern among current need, Patient Commitment and use cannot be established.

Another example of the problem in establishing causality is the confusion among satisfaction, usual source and use. Does tenure with a source lead to satisfaction or does satisfaction lead to tenure? Does satisfaction lead to more use which leads to stronger Patient Commitment? Is there an interaction between use and satisfaction, with the salience of satisfaction increasing as use increases (Thomas and Penchansky 1984)? Is it in fact possible to establish causal patterns from data that derive from one time period, as only those above some threshold of satisfaction remain with a source?

The Marquis, Davies, and Ware (1983) paper on patient satisfaction and continuity attempted to deal with the issue of causality by using a

longitudinal design. The authors equated low continuity with change in doctor. The article related a measure of continuity in time period *2* to satisfaction in time period *1*. Continuity was established relative to the usual source in time period *1*. Unless the usual source measure for time period *1*, which becomes the base for measuring continuity in time period *2*, can be shown to be independent of the continuity and satisfaction measures, causality remains uncertain. Moreover, the measures of satisfaction and continuity are probably not independent of usual source. This is the only study that could be identified relative to issues of Patient Commitment, Managing Physician or Concordance that employed a longitudinal design.

It is clear that the relationships among Managing Physician, Patient Commitment and Concordance and their determinants and effects are complex and may never be fully disentangled. However, it is also clear that with a conceptualization to guide the research, with discriminating measures of Patient Commitment, Managing Physician and Concordance, with use of longitudinal designs, and with analytical methods that allow for interaction of variables or simultaneous events it will be possible to greatly increase our understanding of the patient-provider relationship.

SUMMARY

Concepts termed Patient Commitment, Managing Physician and Concordance have been defined and presented as critical dimensions of the patient-provider relationship that must be considered in research and policy analysis. These concepts are central to health system behaviors that link patient and provider, and they influence both the care process and the outcomes. Representative research about these concepts has been reviewed and general patterns have been identified; to date these concepts have been imprecisely defined and measured and this has negatively influenced the research. Refined definitions and measures of Patient Commitment, Managing Physician and Concordance have been suggested, as was a conceptualization of the relationships among these concepts and of their determinants and effects.

NOTES

1. Access is being employed as a general term encompassing dimensions of availability, accessibility, acceptability, affordability, and accommodation (Penchansky 1977; Penchansky and Thomas 1981; Thomas and Penchansky 1984).
2. Discussion of the relationship of "usual source" to "access" and of employing

the existence of a usual source as a proxy for access is outside the scope of this article.

3. That Marquis, Davies, and Ware (1983) exclude ophthalmologists and psychiatrists from consideration as a usual source supports this position.

4. The literature on measurement of continuity is not reviewed. References on measurement of continuity are Bass and Windle 1972; Bice and Boxerman 1977; Breslau and Reeb 1975; Eriksson and Mattsson 1983; Hennelly and Boxerman 1979; Rogers and Curtis 1980; Shortell 1976; Smedby et al. 1984; Steinwachs 1979. Some of this literature is referred to in the text because it also deals with the impact or effect of continuity; a review article on continuity is Wall 1981.

REFERENCES

Aday, L. A. (1975). "Economic and Noneconomic Barriers to the Use of Needed Medical Services," *Medical Care* 13 (June): 447–56.

_____. (1976). "The Impact of Health Policy on Access to Medical Care," *Health and Society: Milbank Memorial Fund Quarterly* 54 (Spring): 215–33.

Aday, L. A., and Andersen, R. (1975). *Access to Medical Care*. Ann Arbor, Mich.: Health Administration Press.

_____. (1984). "The National Profile of Access to Medical Care: Where Do We Stand?" *American J. of Public Health* 74 (December): 1331–39.

Aday, L. A.; Andersen, R.; and Fleming, G. V. (1980). *Health Care in the U.S.: Equitable for Whom?* Beverly Hills, Calif.: Sage Publications.

Aday, L. A.; Fleming, G. V.; and Andersen, R. (1984). *Access to Medical Care in the U.S.: Who Has It, Who Doesn't*. University of Chicago, Center for Health Administration Studies, Continuing Research Series No. 32. Chicago: Pluribus Press.

Aiken, L. H.; Lewis, C. E.; Craig, J.; Mendenhall, R. C.; Blendon, R. J.; and Rogers, D. E. (1979). "The Contribution of Specialists to the Delivery of Primary Care: A New Perspective," *New England J. of Medicine* 300 (June 14): 1363–70.

Almy, T. P. (1981). "Sounding Boards: The Role of the Primary Physician in the Health-Care 'Industry'," *New England J. of Medicine* 304 (January 22): 225–28.

Alpert, J. J., and Charney, E. (1973). *The Education of Physicians for Primary Care*. DHEW Publication No. (HRA) 74–3113. Rockville, Md.: Bureau of Health Services Research, Health Resources Administration, Public Health Service, Autumn.

Alpert, J. J.; Heagarty, M. C.; Robertson, L.; Kosa, J.; and Haggerty, R. J. (1968). "Effective Use of Comprehensive Pediatric Care," *American J. of Diseases of Children* 116 (November): 529–33.

Alpert, J. J.; Kosa, J.; Haggerty, R. J.; Robertson, L. S.; and Heagarty, M. C. (1970). "Attitudes and Satisfactions of Low-Income Families Receiving Comprehensive Pediatric Care," *American J. of Public Health* 60 (March): 499–506.

Andersen, R., and Aday, L. A. (1978). "Access to Medical Care in the U.S.: Realized and Potential," *Medical Care* 16 (July): 533–46.

Anderson, J. G., and Eggers, P. W. (1976). "Patterns of Utilization among Members of a Prepaid Group Practice," *Inquiry* 13 (December): 382–94.

Anderson, O. W., and Sheatsley, P. B. (1959). *Comprehensive Medical Insurance—A Study of Costs, Use, and Attitudes under Two Plans.* Health Information Foundation Research Series 9. New York: The Foundation.

Ashcraft, M. L. (1978). "The Impact of Previous Medical Care Experience on Enrollment in Prepaid Group Health Plans." Ph.D. diss., University of Michigan.

Bass, R. D., and Windle, C. (1972). "Continuity of Care: An Approach to Measurement," *American J. of Psychiatry* 129 (August): 196–201.

Becker, M. H.; Drachman, R. H.; and Kirscht, J. P. (1974). "A Field Experiment to Evaluate Various Outcomes of Continuity of Physician Care," *American J. of Public Health* 64 (November): 1062–70.

Berki, S. E., and Ashcraft, M. L. (1979). "On the Analysis of Ambulatory Utilization: An Investigation of the Roles of Need, Access and Price as Predictors of Illness and Preventive Visits," *Medical Care* 17 (December): 1163–81.

_____. (1980). "HMO Enrollment: Who Joins What and Why: A Review of the Literature," *Health and Society: Milbank Memorial Fund Quarterly* 58 (Fall): 588–632.

Berki, S. E.; Ashcraft, M. L.; Penchansky, R.; and Fortus, R. S. (1977). "Enrollment Choice in a Multi-HMO Setting: The Roles of Health Risk, Financial Vulnerability, and Access to Care," *Medical Care* 15 (February): 95–114.

Berki, S. E.; Penchansky, R.; Fortus, R. S.; and Ashcraft, M. L. (1978). "Enrollment Choices in Different Types of HMOs: A Multivariate Analysis," *Medical Care* 16 (August): 682–97.

Bice, T. W., and Boxerman, S. B. (1977). "A Quantitative Measure of Continuity of Care," *Medical Care* 15 (April): 347–49.

Bice, T. W., and White, K. L. (1969). "Factors Related to the Use of Health Services: An International Comparative Study," *Medical Care* 7 (March-April): 124–33.

Blackwell, B. (1963). "The Literature of Delay in Seeking Medical Care for Chronic Illnesses," *Health Education Monographs* 1963 (No. 16): 3–31.

Breslau, N. (1982). "Continuity Reexamined: Differential Impact on Satisfaction with Medical Care for Disabled and Normal Children," *Medical Care* 20 (April): 347–60.

Breslau, N., and Haug, M. R. (1976). "Service Delivery Structure and Continuity of Care: A Case Study of a Pediatric Practice in Process of Reorganization," *J. of Health and Social Behavior* 17 (December): 339–52.

Breslau, N., and Mortimer, E. A., Jr. (1981). "Seeing the Same Doctor: Determinants of Satisfaction with Specialty Care for Disabled Children," *Medical Care* 19 (July): 741–58.

Breslau, N., and Reeb, K. G. (1975). "Continuity of Care in a University-Based Practice," *J. of Medical Education* 50 (October): 965–69.

Cahal, M. F. (1962). "What the Public Thinks of the Family Doctor—Folklore and Facts," *GP* 25 (February): 146–57.

Caterinicchio, R. P. (1979). "Testing Plausible Path Models of Interpersonal Trust in Patient-Physician Treatment Relationships," *Social Science & Medicine* 13A (January): 81–99.

Colle, A. D., and Grossman, M. (1978). "Determinants of Pediatric Care Utilization," *J. of Human Resources* 13 (Supplement): 115–58.

Deyo, R. A., and Inui, T.S. (1980). "Dropouts and Broken Appointments: A Literature Review and Agenda for Future Research," *Medical Care* 18 (November): 1146–57.

Dietrich, A. J., and Goldberg, H. (1984). "Preventive Content of Adult Primary Care: Do Generalists and Subspecialists Differ?" *American J. of Public Health* 74 (March): 223–27.

Donabedian, A. (1969). "An Evaluation of Prepaid Group Practice," *Inquiry* 6 (September): 3–27.

Draper, P., and Smits, H. L. (1975). "The Primary Care Practitioner—Specialist or Jack-of-All-Trades," *New England J. of Medicine* 293 (October 30): 903–7.

Ebert, R. V. (1972). "Training of the Internist as a Primary Physician," *Annals of Internal Medicine* 76 (April): 653–56.

Eriksson, E. A., and Mattsson, L. (1983). "Quantitative Measurement of Continuity of Care: Measures in Use and an Alternative Approach," *Medical Care* 21 (September): 858–75.

Fisher, A. W. (1971). "Patients' Evaluation of Outpatient Medical Care," *J. of Medical Education* 46 (March): 238–44.

Freidson, E. (1973). "Prepaid Group Practice and the New 'Demanding Patient'," *Health and Society: Milbank Memorial Fund Quarterly* 51 (Fall): 473–88.

Freidson, E., and Mann, J. H. (1971). "Organizational Dimensions of Large-Scale Group Medical Practice," *American J. of Public Health* 61 (April): 786–95.

Friedman, B. (1978). "On the Rationing of Health Services and Resource Availability," *J. of Human Resources* 13 (Supplement): 57–75.

German, P. S.; Skinner, E. A.; and Shapiro, S. (1976). "Ambulatory Care for Chronic Conditions in an Inner-City Elderly Population," *American J. of Public Health* 66 (July): 660–66.

Goldberg, H. I., and Dietrich, A. J. (1985). "The Continuity of Care Provided to Primary Care Patients: A Comparison of Family Physicians, General Internists, and Medical Subspecialists," *Medical Care* 23 (January): 63–73.

Gordis, L., and Markowitz, M. (1971). "Evaluation of the Effectiveness of Comprehensive and Continuous Pediatric Care," *Pediatrics* 48 (November): 766–76.

Greene, S. B.; Gillings, D. B.; and Salber, E. J. (1979). "Who Shops for Medical Care in a Southern Rural Community—How Much and Why," *Inquiry* 16 (Spring): 62–72.

Heagarty, M. C.; Robertson, L. S.; Kosa, J.; and Alpert, J. J. (1970). "Some Comparative Costs in Comprehensive Versus Fragmented Pediatric Care," *Pediatrics* 46 (October): 596–603.

Hennelly, V. D., and Boxerman, S. B. (1979). "Continuity of Medical Care: Its Impact on Physician Utilization," *Medical Care* 17 (October): 1012–18.

———. (1983). "Out-of-Plan Use and Disenrollment: Outgrowths of Dissatisfaction with a Prepaid Group Plan," *Medical Care* 21 (March): 348–59.

Hershey, J. C.; Luft, H. S.; and Gianaris, J. M. (1975). "Making Sense Out of Utilization Data," *Medical Care* 13 (October): 838–54.

Hochheiser, L. I.; Woodward, K.; and Charney, E. (1971). "Effect of the Neighborhood Health Center on the Use of Pediatric Emergency Departments in Rochester, New York," *New England J. of Medicine* 285 (July 15): 148–52.

Hoffmann-La Roche, Inc. (1980). "Case Study and Analysis of the Minnesota Medical Assistance Recipient Restriction Program." Medicaid Utilization Management Program Special Reports, Section 4. Nutley, N.J.: The Corporation, September.

Hurtado, A. V.; Greenlick, M. R.; and Colombo, T. J. (1973). "Determinants of Medical Care Utilization: Failure to Keep Appointments," *Medical Care* 11 (May-June): 189–98.

Kane, R. L. (1969). "Determination of Health Care Priorities and Expectations among Rural Consumers," *Health Services Research* 4 (Summer): 142–51.

Kasper, J. A., and Barrish, G. (1982). *Usual Sources of Medical Care and Their Characteristics.* NCHSR National Health Care Expenditures Study Data Preview 12, DHHS Publication No. (PHS) 82–3324. Hyattsville, Md.: National Center for Health Services Research, October.

Kasteler, J.; Kane, R. L.; Olsen, D. M.; and Thetford, C. (1976). "Issues Underlying Prevalence of 'Doctor-Shopping' Behavior," *J. of Health and Social Behavior* 17 (December): 328–39.

Kelman, H. R., and Lane, D. S. (1976). "Use of the Hospital Emergency Room in Relation to Use of Private Physicians," *American J. of Public Health* 66 (September): 891–94.

Kennedy, V. C. (1979). "Rural Access to a Regular Source of Medical Care," *J. of Community Health* 4 (Spring): 199–203.

Kingstrom, P. O. (1983). "Patient Ties to Ambulatory Care Providers: The Concept of Provider Loyalty," *J. of Health Care Marketing* 3 (Spring): 27–34.

Koplin, A. N., and Daniels, H. C. (1953). "The 'Managing Physician' Concept in the Practice of Medicine," *J. of the National Medical Association* 45 (March): 196–200.

Koplin, A. N.; Hutchison, R.; and Johnson, B. K. (1959). "Influence of a Managing Physician on Multiple Hospital Admissions," *American J. of Public Health* 49 (September): 1174–80.

Kretz, S. E.; Mitchell, M. L.; and Wallack, S. S. (1980). "The Patient Volume of Rural Primary Care Physicians," *Eastern Economic J.* 6 (January): 57–69.

Kronenfeld, J. J. (1978a). "Provider Variables and the Utilization of Ambulatory Care Services," *J. of Health and Social Behavior* 19 (March): 68–76.

———. (1978b). "The Medicaid Program and a Regular Source of Care," *American J. of Public Health* 68 (August): 771–73.

———. (1980). "Sources of Ambulatory Care and Utilization Models," *Health Services Research* 15 (Spring): 3–30.

Kuder, J. M. (1982). "Prices and the Distribution of Ambulatory Medical Visits." Ph.D. diss., University of Michigan.

Kutner, B., and Gordon, G. (1961). "Seeking Care for Cancer," *J. of Health and Human Behavior* 2 (Fall): 171–78.

Kutner, B.; Makover, H. B.; and Oppenheim, A. (1958). "Delay in the Diagnosis and Treatment of Cancer: A Critical Analysis of the Literature," *J. of Chronic Diseases* 7 (February): 95–120.

Lave, J. R.; Lave, L. B.; Leinhardt, S.; and Nagin, D. (1979). "Characteristics of Individuals Who Identify a Regular Source of Medical Care," *American J. of Public Health* 69 (March): 261–67.

Leveson, I. (1972). "Access to Medical Care: The Queensbridge Experiment," *Inquiry* 9 (June): 61–68.

Linn, L. S. (1975). "Factors Associated with Patient Evaluation of Health Care," *Health and Society: Milbank Memorial Fund Quarterly* 53 (Fall): 531–48.

Luft, H. S. (1981). *Health Maintenance Organizations: Dimensions of Performance.* New York: John Wiley & Sons.

Luft, H. S.; Hershey, J. C.; and Morrell, J. (1976). "Factors Affecting the Use of Physician Services in a Rural Community," *American J. of Public Health* 66 (September): 865–71.

Marcus, A. C. (1981). "Mode of Payment as a Predictor of Health Status, Use of Health Services and Preventive Health Behavior: A Report from the Los Angeles Health Survey," *Medical Care* 19 (October): 995–1010.

Marcus, A. C., and Stone, J. P. (1984). "Mode of Payment and Identification with a Regular Doctor: A Prospective Look at Reported Use of Services," *Medical Care* 22 (July): 647–60.

Marquis, M. S.; Davies, A. R.; and Ware, J. E., Jr. (1983). "Patient Satisfaction and Change in Medical Care Provider: A Longitudinal Study," *Medical Care* 21 (August): 821–29.

Mendenhall, R. C.; Lewis, C. E.; DeFlorio, G. P.; and Girard, R. A. (1979a). "A National Study of Medical and Surgical Specialties: III. An Empirical Approach to the Classification of Patient Care," *J. of the American Medical Association* 241 (May 18): 2180–85.

Mendenhall, R. C.; Tarlov, A. R.; Girard, R. A.; Michel, J. K.; and Radecki, S. E. (1979b). "A National Study of Internal Medicine and Its Specialties: II. Primary Care in Internal Medicine," *Annals of Internal Medicine* 91 (February): 275–87.

Millis Commission (1966). *The Graduate Education of Physicians.* Report of the Citizens Commission on Graduate Medical Education. Chicago: American Medical Association.

Mindlin, R. L., and Densen, P. M. (1969). "Medical Care of Urban Infants: Continuity of Care," *American J. of Public Health* 59 (August): 1294–1301.

National Governors' Association (1982). *Medicaid and Primary Care Networks.* Washington, D.C.: Center for Policy Research, State Medicaid Information Center, National Governors' Association, March.

Okada, L. M., and Sparer, G. (1976). "Access to Usual Source of Care by Race and Income in Ten Urban Areas," *J. of Community Health* 1 (Spring): 163–74.

Olsen, D. M.; Kane, R. L.; and Kasteler, J. (1976). "Medical Care as a Commodity: An Exploration of the Shopping Behavior of Patients," *J. of Community Health* 2 (Winter): 85–91.

Penchansky, R. (1977). *The Concept of Access: A Definition.* Publication HRP–0900113. Springfield, Va.: National Technical Information Service, U.S. Department of Commerce, October.

Penchansky, R., and Fox, D. (1970). "Frequency of Referral and Patient Characteristics in Group Practice," *Medical Care* 8 (September-October): 368–85.

Penchansky, R., and Thomas, J. W. (1981). "The Concept of Access: Definition and Relationship to Consumer Satisfaction," *Medical Care* 19 (February): 127–40.

Perrin, E. B.; Harkins, E. B.; and Marini, M. M. (1978). *Evaluation of the Reliability and Validity of Data Collected in the USC Medical Activities and Manpower Projects.* Washington, D.C.: U.S. Department of Health, Education, and Welfare, November.

Poland, M. L. (1976). "The Effects of Continuity of Care on the Missed Appointment Rate in a Prenatal Clinic," *J. of Obstetrics, Gynecology and Neonatal Nursing* 5 (March-April): 45–47.

Pope, C. R.; Freeborn, D. K.; and Greenlick, M. R. (1972). "Use of Outside Physicians by Members of a Group Practice Prepayment Plan." Paper presented at the Annual Meeting of the American Public Health Association.

Robert Wood Johnson Foundation (1978). *A New Survey on Access to Medical Care.* Special Report No. 1. Princeton, N.J.: The Foundation.

———. (1981). *Special Report: Medical Practice in the United States.* Princeton, N.J.: The Foundation.

Rogers, J., and Curtis, P. (1980). "The Concept and Measurement of Continuity in Primary Care," *American J. of Public Health* 70 (February): 122–27.

Roghmann, K. J.; Gavett, J. W.; Sorensen, A. W.; Wells, S.; and Wersinger, R. (1975). "Who Chooses Prepaid Medical Care: Survey Results from Two Marketings of Three New Prepayment Plans," *Public Health Reports* 90 (November-December): 516–27.

Roos, L. L.; Roos, N. P.; Gilbert, P.; and Nicol, J. P. (1980). "Continuity of Care: Does it Contribute to Quality of Care?" *Medical Care* 18 (February): 174–84.

Schumaker, C. J., Jr. (1970). "How Change in Sponsorship Affected Use of Neighborhood Health Center," *Hospital Topics* 5 (May): 69–70, 72, 96.

———. (1971). "Change of Health Center Sponsorship: I. Impact on Patterns of Obtaining Medical Care," *American J. of Public Health* 61 (August): 1536–44.

———. (1972). "Change in Health Center Sponsorship: II. Cohesiveness, Compactness and Family Constellation of Medical Care Patterns," *American J.of Public Health* 62 (July): 931–35.

Scitovsky, A. A.; Benham, L.; and McCall, N. (1979). "Use of Physician Services under Two Prepaid Plans," *Medical Care* 17 (December): 441–60.

———. (1981). "Out-of-Plan Use under Two Prepaid Plans," *Medical Care* 19 (December): 1165–93.

Shear, C. L.; Gipe, B. T.; Mattheis, J. K.; and Levy, M. R. (1983). "Provider Continuity and Quality of Medical Care: A Retrospective Analysis of Prenatal and Perinatal Outcome," *Medical Care* 21 (December): 1204–10.

Shortell, S. M. (1976). "Continuity of Medical Care: Conceptualization and Measurement," *Medical Care* 14 (May): 377–91.

Shortell, S. M.; Richardson, W. C.; LoGerfo, J. P.; Diehr, P.; Weaver, B.; and Green, K. E. (1977). "The Relationships among Dimensions of Health Services in Two Provider Systems: A Causal Model Approach," *J. of Health and Social Behavior* 18 (June): 139–59.

Smedby, B.; Smedby, O.; Eriksson, E. A.; Mattsson, L.; and Lindgren, A. (1984). "Continuity of Care: An Application of Visit-Based Measures," *Medical Care* 22 (July): 676–80.

Solon, J. A. (1966). "Patterns of Medical Care: Sociocultural Variations among a Hospital's Outpatients," *American J. of Public Health* 56 (June): 884–94.

———. (1967). "Changing Patterns of Obtaining Medical Care in a Public Housing Community: Impact of a Service Program," *American J. of Public Health* 57 (May): 772–83.

Solon, J. A., and Rigg, R. D. (1972). "Patterns of Medical Care among Users of Hospital Emergency Units," *Medical Care* 10 (January-February): 60–72.

Solon, J. A.; Sheps, C. G.; and Lee, S. S. (1960a). "Delineating Patterns of Medical Care," *American J. of Public Health* 50 (August): 1105–13.

———. (1960b). "Patterns of Medical Care: A Hospital's Outpatients," *American J. of Public Health* 50 (December): 1905–13.

Spiegel, J. S.; Rubenstein, L. V.; Scott, B.; and Brook, R. H. (1983). "Who Is the Primary Physician?" *New England J. of Medicine* 308 (May 19): 1208–12.

Steinwachs, D. M. (1979). "Measuring Provider Continuity in Ambulatory Care: An Assessment of Alternative Approaches," *Medical Care* 17 (June): 551–65.

Steinwachs, D. M., and Yaffe, R. (1978). "Assessing the Timeliness of Ambulatory Medical Care," *American J. of Public Health* 68 (June): 547–56.

Strecher, V. J. (1982). "Improving Physician-Patient Interactions: A Review," *Patient Counselling and Health Education* 4 (No. 3): 129–36.

Susser, M. W. (1963). "Further Thoughts on the Future of Medical Practice Outside the Hospital," *The Lancet* 1 (February 9): 315–19.

Tessler, R., and Mechanic, D. (1975). "Factors Affecting the Choice between Prepaid Group Practice and Alternative Insurance Programs," *Health and Society: Milbank Memorial Fund Quarterly* 53 (Spring): 149–72.

Thomas, J. W., and Penchansky, R. (1984). "Relating Satisfaction with Access to Utilization of Services," *Medical Care* 22 (June): 553–68.

Wall, E. M. (1981). "Continuity of Care and Family Medicine: Definition, Determinants, and Relationship to Outcome," *Journal of Family Practice* 13 (May): 655–64.

Wallack, S. S., and Kretz, S. E. (1981). *Rural Medicine*. Lexington, Mass.: Lexington Books.

Ware, J. E., Jr.; Davies-Avery, A.; and Stewart, A. L. (1978). "The Measurement and Meaning of Patient Satisfaction," *Health & Medical Care Services Review* 1 (January-February): 1, 3–15.

Weinerman, E. R.; Ratner, R. S.; Robbins, A.; and Lavenhar, M. A. (1966). "Yale Studies in Ambulatory Medical Care: V. Determinants of Use of Hospital Emergency Services," *American J. of Public Health* 56 (July): 1037–56.

Willard Committee (1966). *Meeting the Challenge of Family Practice*. Report of the Ad Hoc Committee on Education for Family Practice. Chicago: Council on Medical Education, American Medical Association.

Zwick, D. L. (1972). "Some Accomplishments and Findings of Neighborhood Health Centers," *Milbank Memorial Fund Quarterly* 50 (October): 387–420.